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The BEATER

DECEMBER, 1918

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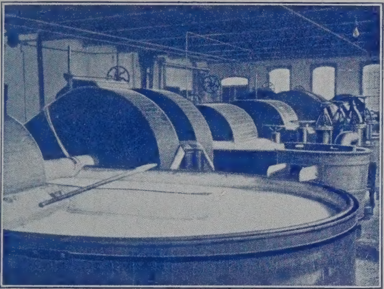
"Peace on Earth, Good Will Toward Men"

Our Wish

'TIS Christmas Tide and nearing a New Year. So we wish you a Merry Christmas and a Happy, Prosperous New Year, and may you gather force and your light cast its beams further along your chosen pathway before another year shall have come to pass.

VALLEY
IRON
WORKS
COMPANY
APPLETON
WISCONSIN

BEA
1918-24



The BEATER

*A Publication for
Paper and Pulp
Manufacturers*

PUBLISHED BY
Valley Iron Works Co.
Appleton, Wis., U. S. A.

Volume 5 DECEMBER, 1918 Number 6

"Thanks be to God"

*A Message of Thanksgiving
by Dr. Wm. Forney Hovis*

AMONG the many things for which our lives o'erflow with gratitude, one thing stands out this year in bold relief. We are glad for the returning sanity of a world gone mad with rage. "Thanks be to God that the war is done." is the common strain of a universal song of praise. We rejoice because "truth crushed to earth" has risen again, that there is evidence that God has made the wrath of men to praise Him, and that it never seemed so clear that "He will not fail nor be discouraged until He have set justice in the earth and the isles shall wait for His law."

IN the light of the dawn of the new day that is breaking on the earth, it is easy to believe with Tennyson that "Thru the ages one increasing purpose runs" and that the whole creation is moving toward what he called a "far-off divine event." Men grateful that the world has been given a new birth of freedom and thankful for victorious peace are saying everywhere, "Thanks be to God!" With the sun-up on a new earth it seems indeed, that "all's right with the world" because "God is in His heaven."

OUR brave men fought like valiant sons of worthy sires—brave warriors all. We will sing their honor in paeans of praise while hearts shall beat and moons shall wax and wane, but out hearts shall never cease to say "Thanks be to God who giveth us the victory! Glory to God in the highest and on earth peace! Enter into His gates with thanksgiving and into His courts with praise! Be thankful unto Him and bless His name!"

Help Make the Red Cross Membership Drive a Big Success

Starts Dec. 16th *Ends Dec. 23rd*

EVERYBODY—men and women—boys and girls—rich and poor—white, black, red, or brown—is expected to boost for the big Red Cross membership campaign which starts Dec.16th.

This is not a campaign for money, but for membership—universal membership. A campaign in which every true citizen of the U. S. A. is expected and urged to line-up with this great work.

Now, please don't sit back and say "the war's over, what's the use?" The war is over but not the work of the Red Cross Society. This organization will play a large and tremendously important part in the rehabilitation of war-ravished Europe—a gigantic task that needs your good will and support.

If you are not already a member, join now. If you are a member, ask your friends and associates to join.

Remember the dates — Dec. 16 to Dec. 23—and *get busy*.

Newest Science

To take the place of adhesive plaster a candle has been invented, composed of paraffin and cleansing and healing ingredients, which is lighted in the usual way, the drippings being allowed to flow over wounds and seal them.

* * *

Using bean cake as a basis, a concern in Japan has begun the manufacture of an imitation celluloid that also can be used as a substitute for lacquer, artificial leather and rubber and as a water and heat resisting building material.

* * *

Canadian chemists have succeeded in combining iron, chromium and cobalt into a new metal said to be very easy to work and suitable for making the finest form of cutlery. The new metal is called "festal."

THERE are ten rules for business success. The first is—Know How. The second is—Use What You Know. The other eight rules are the same as the first two.—The Hudsonian.

Our Flag

NOW God be thanked for the power
to feel;
For the throb and thrill and the
quick brain-reel;
The choke in the throat and the blur of
tears,
When we catch from afar through a storm
of cheers
The first faint notes of bugle—and then
Like a thing of life o'er marching men
The first glad glimpse of beloved stars
On a field of blue—and the glorious bars
Of red and white, with a glimmer and shine
That stirs the blood like a draft of wine.

—*Theodore F. MacManus.*

Thrift is Great Lesson of War

Wasteful Habits of Nation Campletely Changed by Emergency. Salvage Now a Fine Art.

IT is a strange anomaly that war with its wastage of men, money and material should at the same time be the surest and most insistent teacher of economy. Yet it is certain that before 1914 few nations appreciated this virtue at its true value nor was it practiced widely by individuals. It was regarded rather as one of those plain, domestic qualities that are highly commendable, but unattractive and to be cultivated only under the stern hand of necessity.

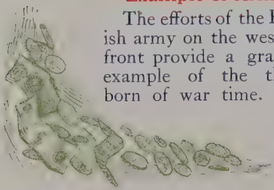
It was left to the forces of a world war to provide the stimulus to set moving a concerted and contiuous effort towards thrift.

Nothing wears out now in the sense that it is beyond further work. The word "rubbish" as applied to any article is obsolete. Worn clothes, broken jam jars, used bus tickets—all hold latent possibilities for continued usefulness and if treated properly will rise from the dust heap ripe for a second term of service.

This art of making something out of nothing comes to men in the practice of war.

Example of Army

The efforts of the British army on the western front provide a graphic example of the thrift born of war time.



The quartermaster general in France in reporting on the extent of the salvage brought in from the battle-fields, gives some interesting and amazing figures. During ten weeks only of this year (May 11 to July 27) he reckons the value of the salvaged saved material to be close on $25,000,000. Twenty-eight and a half millions of fired cartridge cases, 11,250,000 of rifle ammunition clips, 56,000 rifles, 40,000 bayonets, 110,000 shirts, 45,000 great coats—these represent some of the debris of the battle-field which, if not collected systematically, would lie there to be carried off by stray wanderers out for booty or more likely to rot.

This treasure, once recovered, is carried behind the lines, where extensive provision is made for its proper treatment. For instance, there is, only a few miles from the battle front, a factory for the repairing of boots and the general doctoring of leather in all its stages of wear.

Metals are Recovered

Another industry is the recovery of solder, lead and zinc from waste material, for where guns have been at work debris of this sort abounds and is precious. Great kilns have been established, in which the work goes on continuously, with the result that in these same two and a half months operations show a gain from the salvage of metal of twenty-four tons of solder, thirty-six of lead, and ninety-six tons of zinc.

Demands of Peace on Industry

THOSE unfamiliar with the facts can have little conception of the demands which the war has made upon industry in the United States. The removal of the censorship is beginning to reveal the enormous export business of the country during the last nineteen months. Without an adequate apprehension of the volume of shipments of raw and manufactured merchandise from the United States in the course of these months, it will hardly be possible to apprehend the demands of peace. It may, however, help in some degree if as a beginning, it shall be understood that nearly all shortage in normal industry during the war will have to be made up in the early months, or at any rate in the early years, of peace; that where there has been neglect in upkeep, and neglect has been general, there must be rehabilitation; and that where there has been destruction there must be reconstruction.—*Christian Science Monitor.*

Hairy Heroes

IT is one of the peculiarities of modern days that hair is rather at a discount where fighting men are concerned. However you may have prided yourself on your flowing locks when you wore civilian garb, you had to "get your hair cut" when you joined the army. Why?

Short hair does not spell courage, for we read in classical history how the three hundred Spartans who held the Pass of Thermopylae, and thus won an immortal fame, were seen combing their long hair, making themselves look "nibs," because they were going to fight to the death against invaders. If the pictures our artists give us of the Vikings are at all like the real thing those sea warriors wore their hair long also. It is quite certain that the Cavaliers who fought for Charles I wore abundant locks to distinguish them from the Roundheads of Cromwell, who went well cropped. Then we know our soldiers came back from the Crimea with beards and long hair, and that they did more than anything else to bring beards again into fashion.

But, they, poor fellows, had no option. Probably having scarce a rag to their back, they grew their hair for warmth. However, we may take comfort from the fact that Absalom seems to be the only recorded instance of a soldier actually dying of long hair.—*London Answers.*

New War Stamp to be Issued in 1919

ALTHOUGH hostilities are over, War Savings Stamps, as government securities, will be issued again next year.

According to J. H. Puelicher, state director of war savings, the war savings campaign has attracted such great success in creating patriots and transforming habits of people from waste and extravagance into thrift that the government has decided to put the war savings campaign on a permanent basis.

The 1919 stamp will be in blue, instead of the green of 1918, so it will be easy to distinguish between the two issues. The new series will have the vignette of Franklin, the apostle of saving, instead of Washington.

The same thrift stamps and thrift cards will continue in use and be exchanged for $5.00 War Savings Stamps as at present. The 1919 series will mature in 1924.

Quality Made the Name that Now Stands for Quality

WHEN this business was first established we determined to attain and maintain a reputation for the quality, efficiency and service of our products. That we succeeded is evidenced by our growth and present capacity.

From a humble beginning, some twenty odd years ago, our capacity and manufacturing facilities have been steadily increased until today we occupy and operate the big, modern equipped plant shown above.

The name—Valley Iron Works Company—stands for quality and highest efficiency. It stands for the best in its line, in every sense of the word "best." It stands for high-grade materials rightly used; expert workmanship thoroughly organized; skill specialized; talent responsive to business impulses; extensive equipment of the latest type and ample capacity.

We have been honored during the past twenty years by the close friendship of the men with whom we have business relations. We are proud of this friendship; proud of our record; proud of the men with whom we deal—men who are themselves "making good" in their chosen lines. It is their encouragement—their "well done"—that helps us forward.

And now, we extend to you—one and all—our most cordial wishes for continued success and uninterrupted prosperity.

©
TRADE MARK
Quality First

* * *

The Food Administrator states that it is much healthier to eat fruits with the skins on instead of peeling them. We'd love to see him tackle a pineapple.

The Christmas Spirit

The Real Thing Does Not Come in Bottles

THERE are many kinds of Christmas spirit. There is the kind that some men go sneaking home with in the evening about the 23rd or 24th, wrapped in an oblong package. This kind is easily recognized for it makes a noise "glug, glug, glug," as the man walks. This is a very low order of Xmas spirit and we mention it first for we are beginning at the bottom.

Then there is the spirit found in some thermometers, the red kind; this is also pretty low around Christmas time.

There's the kind that comes in blue wreaths enveloping the plum pudding—and comes with the peaches, the peaches with the cloves stuck in here and there, you know — the peaches you slip over on the unsuspecting minister as you wink at your wife and he takes three helpings—refuses the fourth, but says he will have "just a little more of the gravy, please."

But who can describe this old feeling that gets us along toward the very tag end of the year; when we just sort of let down and do a lot of forgetting and a lot of remembering—forgetting what isn't right to remember and remembering where it would hurt someone should we forget, or remembering where it will surprise and make happy someone who has had an over-share of forgetting.

What is it that makes your smile come a little quicker and stay a little longer? What makes you shake hands a little harder?

It is the real 99/100 per cent pure Christmas spirit, the best part of the whole year, the part reserved for the last. The real thing cannot be had by pulling a cork from a bottle. You must pull the cork from your heart and pour yourself out. And happiest is the man who has enough bubbles in his system from a year's storage that he needs no corkscrew.

Make this Your Code of Honorable Names

MY name for every true man in these United States will be the honorable name of "American."

My reference to all "new Americans" born in other lands shall never be dishonored by slurs, nicknames or hyphens.

My purpose shall be to discourage in the native born the love for titles, to help every immigrant to forget his hyphen and be proud of the name American and to stamp out the use of such nicknames as words of derision of the foreign born.

We pledge our service never to use, and to discourage everywhere, the use of such words as Dago, Dutchy, Froggy, Ginny, Greaser, Heiny, Horwat, Hunky, Kike, Mick, Paddy, Sheeny, Spaghetti, Wop, as applied to any foreign-born resident of the United States of America.

Help Them Learn the English Language

THE English language is not easy to learn, and it is especially difficult for those who come to this country after their school days are over. Therefore, when your foreign associate shows the right spirit by trying to acquire our language, be careful to encourage him in the effort.

If he wants to display what he has learned in night school, and use a few English phrases, don't rebuff him. Have patience when he talks to you in broken English. Never laugh at him or discourage his attempts, but help him to pronounce the words and form his sentences correctly.

In case you speak his foreign language, use English for choice in talking with him, and thus get him into the habit of talking English.

The foreign born among us will never become 100 per cent Americans until they can talk to us, understand us, read our newspapers and books, listen to our patriotic speakers, and even think in the language of America.

If it seems a waste of time to listen to the attempt of a foreigner to talk English, just consider it as patriotic service and do it cheerfully.

* * *

Felt Like It

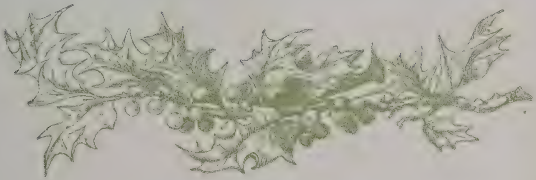
"Here's something queer," said the dentist. "You say this tooth has never been worked on before, but I find small flakes of gold on my instrument."

"I think you have struck my back collar button," replied the victim.

Coal Saving Suggestions

JUST at this time, when the conservation of coal is an absolute necessity, every practical suggestion for such conservation should be of interest. Everyone knows that smoke issuing from boiler stacks represents unused heat units, but it is not generally realized that certain simple rules, if observed in the fire-room, will materially decrease this loss. The following suggestions are based on many year's experience of the Westinghouse Electric & Mfg. Co.'s combustion engineers.

(1)—Prevent smoke by proper firing methods. (2)—Use gauges to indicate exactly the condition of the fire bed at all times. (3)—Avoid loss due to unburned coal in the ash. (4)—Don't waste exhaust steam. (5)—Don't permit the grates to clog. (6)—Inspect the baffles in the boilers, as broken or leaky baffles raise the flue gas temperature and waste coal. (7)—Install stokers. Hand firing is an obsolete and wasteful method. (8)—Clean scale and soot from tubes. (9)—All smoke flues should be as short and straight as possible. Flues should also be made air-tight and all joints and connections should be well fitted, calked and riveted. (10)—The size of coal has much to do with the capacity and efficiency of boilers. In general, the air pressure penetrates the fuel bed formed by coarse coal easier than that formed by finer coal, resulting in a disturbance of the best furnace conditions.



Holly Berries

The door of matrimony is closed to the knocker, but opens readily to the wedding ring.

◆

The man behind the bass drum is not the only chap who beats his way through life.

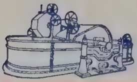
◆

Black hens are cleverer than white hens, for a black hen can lay a white egg, but a white hen can never, never lay a black egg.

A man can progress faster with a smile than without one. In other words, it pays to be pleasant, courteous and agreeable.

◆

If a man is known by the company he keeps and if a good man keeps company with a bad man, is the good man bad because he's hooked up with the bad man, or is the bad man good because he trains with the good man? Or do you think winter has really set in?



WE cordially invite every reader of *The Beater* to partake with us of the following Yuletide Dinner, to be served on Christmas day and every day thereafter as long as we all do live:

MENU

LOVE TRUTH

HEALTH, HEAPED WITH HAPPINESS

LONG LIFE, STUFFED WITH USEFULNESS

PEACE

CHARITY, SERVED WITH DISCRETION

AMBITION, SMOTHERED IN KIND DEEDS

TENDER MEMORIES

HOPE, FULFILLED WITH ACHIEVEMENT

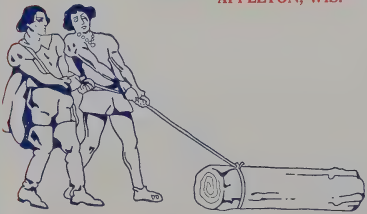
HEART, FOND AND TRUE

SUCCESS, GARNISHED WITH SMILES

SWEET THOUGHTS GOOD LUCK

VICTORY

VALLEY IRON WORKS CO.
APPLETON, WIS.



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Those Who Return Not

ON a day in June of last year the country was thrilled by the news that a division of the American army had arrived in France. They were the first of our land to reach the theater of war, the first to bear the Stars and Stripes to gladden the eyes and fire the hearts of the war-worn legions of France, with the promise of help and comfort to come, and although they were but a handful compared with the vast armies battling at the front, they were to us and to them the symbol of the awakening of a giant.

It was many weeks later before the fulfillment of the promise began in the thin brown stream that flowed out from the first transport and that gradually widened and lengthened until it touched and spread upon the fighting line. Over 2,000,000 of our boys have been sent to France since that day in June, most of them this year, not all for fighting, but all for service, and heroes every one.

What they have done toward the victorious ending of this war is not to be measured with exactness in this day, but we know that they have had great and honorable share in the work that brought the triumph, we know that they have placed the word "America" still higher on the eternal roll of glory, and we know that we are proud of them, every last man of them.

Before very long, the brown stream will be flowing westward and we shall welcome them as they deserve to be welcomed.

But there are some who will not return. There are some who gave all that they had for the great cause, and they now sleep beneath the poppies in the fields of France.

Many a rude cross bearing an American name tells of a sacrifice that was complete and of a service that may not with honor be forgotten.

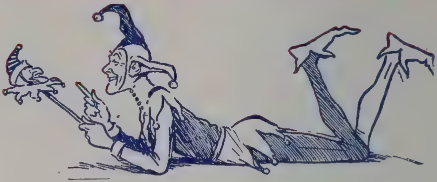
They died for us. That is the fact that should be gravened on every American heart. They died for us.

And more, they died to save mankind from a cruel subjection, they died to secure the blessings of freedom for all men, they died that others might live, live happily, live in the bright sun of a new day. Each and every one of them bears a distinguished service cross that time cannot tarnish.

Their names ultimately, will pass into oblivion, as all names except a favored few, must pass, but no years can efface their deeds, and they, though forgotten, will live forever in the immortality of their service.

Some day we shall build great monuments to our boys who fell in France, but no edifice of marble or of brass can equal the monument they themselves built.—*St. Louis Globe Democrat.*

JEST FUR FUN



Explained at Last

They call it a "Bridal party" because the groom wears that part of the harness.

* * *

Woman's Ways

"But, papa, mama particularly said she wanted a green table cover, and now you've bought her a red one for a Christmas present."

"I know, Honey. But you know your mother isn't really happy unless she can take her presents back to the stores and exchange them and I didn't want to spoil her pleasure."

* * *

A Hero

Sailor—"Yes ma'am, I've been torpedoed three times."

Innocent Old Lady—"Just think of it. I do wish you'd show me the scars."

* * *

The Mystery

The Wobbly One—"Offisher, did you shee me f-fall?"

Officer—"Yes."

The W. O.—"Had you ever sheen me before?"

Officer—"No."

The W. O.—"Then how d-did you know it washz me?"

Dad's Christmas

Molly—"Well, have we got presents for everybody?"

Jinnie—"Yes, there's a pianola for Dora; an automobile for Sam; a diamond ring for ma; a pair of forty-five button kid gloves for the cook-lady, and a box of cigars for the garbage man."

Molly—"How about dad?"

Jinnie—"Forgot him, begosh!"

Molly—"That's horrible! Give me a dime quick, and let me hustle to the ten-cent store before it closes."

* * *

Kill or Cure

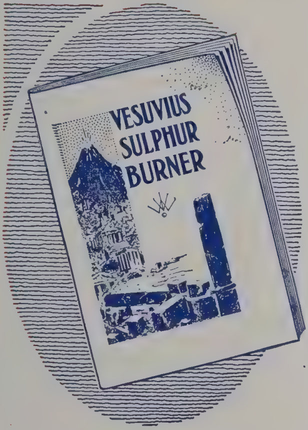
He purchased a bottle on a drug store counter labeled, "No more colds! No more coughs—25c."

He came back in a few days saying the mixture had done no good as his cold was worse than ever after drinking the entire bottle.

"Drunk it all!" gasped the druggist. "Why great scott, man, that was an India rubber solution to put on the soles of your boots."

* * *

This would be a grand old world if everybody paid their bills as cheerfully as they pay grudges.



This Free Book Helps Splendidly

THIS text book on sulphur burning shows how to increase production and cut costs. Contains valuable data on sulphur burning that every user of sulphuric acid should have. Gives full information about the equipment you will eventually install—the

Vesuvius Sulphur Burner

Everyone interested in the economical production of pulp, paper and fertilizer should read this book. Get a copy now and learn how to make the most of your opportunities.

The Book Speaks for Itself—
Send for a Copy Today, SURE

Valley Iron Works Company
Appleton, Wisconsin

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TRADE MARK

This Mark Stands for Quality of Material and Workmanship and the Highest Achievements in the Manufacture of Paper Making Machinery

WE are still engaged in filling Government contracts for marine engines, but in the very near future we expect to take care of your requirements in

- Vesuvius Oxidizing Sulphur Burners
- Beating, Washing and Bleaching Engines
- Barkers and Barker Attachments
- Chippers—Re-Chippers—Chip Screens
- Knot Screens (Revolving)
- Diaphragm Screens — Felt Washers
- Deckers (Single and Double)
- Stuff Chests (Vertical and Horizontal)
- Shredders and Special Washers for Old Paper Stock
- Wet Machines and Patent Roll Skinners
- Bronze, Semi-Steel, Lead and Iron Castings
- Hayton Centrifugal Pumps

Meanwhile our advice on any question pertaining to Pulp Making Machinery is yours, without charge. Put your difficult problems up to us—get the benefit of our years of experience.

■ ■ ■

Valley Iron Works Company

Appleton, Wis., U. S. A.

Produced by The Cramer-Krasselt Co.

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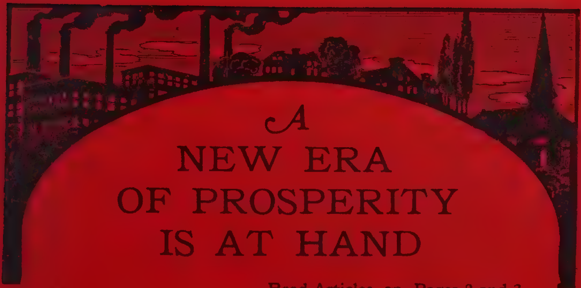
The BEATER

JANUARY, 1919

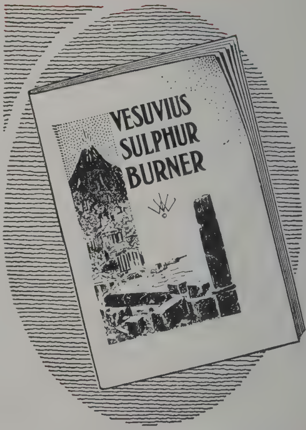


—Read Articles on Pages 2 and 3.

Our Free Book Tells How To Save Both Time and Money

The Vesuvius Sulphur Burner Book is a veritable encyclopedia on economical sulphur burning. It shows how to increase production and cut costs. Contains valuable data on sulphur burning that every user of sulphuric acid should have. Gives full information about the equipment you will eventually install—the

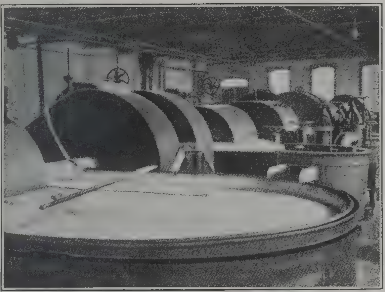
Vesuvius Sulphur Burner



All users of sulphuric acid and everyone who is interested in the economical production of pulp, paper and fertilizer should read this book. Get a copy now and learn how to make the most of your opportunities.

This book speaks for itself—write for it today, SURE.

Valley Iron Works Co.,
Appleton Wisconsin



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Volume 6 JANUARY, 1919 Number 1

The Outlook for 1919 is Extremely Promising

THE close of the greatest war in the history of the world finds the American business man cool, calm and thoroly able to cope with the reconstruction period now at hand.

A new era of wonderful opportunity is before us and the outlook for 1919 is extremely promising.

Manufacturers who, for the past few years, have "carried on" in spite of obstacles never before experienced, will reap the reward of their patience and faith in the future, held from the very beginning of our country's participation in the great struggle, which has resulted in a sweeping victory for not only the belligerents, but for American leadership and American industry in every line.

There will be no panic, confusion or sudden slump in prices. The spirit of co-operation and reciprocity has spread from industry to industry and far-seeing men realize that prosperity is here to stay.

Over-conservatism and timidity are likely now to prove as costly as recklessness at other times. Prosperity is contagious—*go ahead and catch it.* Our good fortune is almost scandalous.

An All-American New Year

I RESOLVE now for 1919 to be a 100 per cent citizen—

I resolve to do more for my country—

I resolve to be a better civilian—

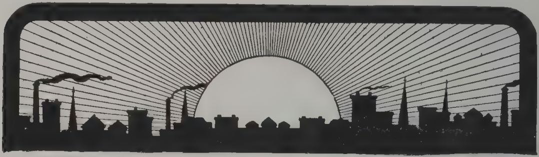
I resolve to support my flag's ideals—

I resolve to abide by my country's laws—

I resolve to waste nothing, destroy nothing—

I resolve to subscribe to all patriotic movements—

I resolve to become an honor to the nation and flag.—*The J. S. K. Shoe News.*



The Business Future

OUR trade is now the largest on record. The same is true of our bank deposits. The purchasing power of the people is greater than ever before; their commercial vigor and imagination have been immensely stimulated by a year which has opened to us opportunities abroad that were undreamed of previously. Our credit machinery has been so improved that it functions almost perfectly and automatically. We hold more gold than any other nation in the world, and all Europe is in debt to us.

The diagnosis does not indicate a diseased condition. It is true that some readjustments will be necessary as we change over from the activities of war to those of peace, but this change is one that has been expected and generally prepared for. It is also true that by continually talking about the imminence of hard times we may create an illusion of them. Hypochondria is a well defined and autogenous, though not often a fatal disease. It would appear to be the only disorder that threatens us, and our resistance to it ought to be great.

We recall an old-fashioned physician who used to ask his patients whether they ate and slept well. If they replied affirmatively he told them that there was nothing the matter with them, and declined to prescribe for them. America is certainly sleeping well at present, and there is nothing the matter with our appetites.

Why should we talk ourselves into a nervous depression. We often try to see too far ahead. It was not intended that we should be able to forecast the distant future. If we could do this we should be miserable. Since perforce we must be opportunists, let us at least be intelligent and happy.—*Theodore H. Price in Commerce and Finance.*

An Ode to the Flu

WHEN your back is broke
and your eyes are blurred,
And your shinbones knock
and your tongue is furred,
And your tonsils squeak and your hair gets dry,
And you're doggone sure that you're going to die,
But you're skeered you won't and afraid you will,
Just drag to bed and have your chill,
And pray the Lord to see you through,
For you've got the flu, boy, you've got the flu.

When your toes curl up and your belt goes flat,
And you're twice as mean as a Thomas cat,
And life is a long and dismal curse,
And your food all tastes like a hard boiled hearse,
When your attic aches and your head's a buzz,
And nothing is as it ever was,
Here are my sad regrets to you,
You've got the flu, boy, you've got the flu.

What is it like this Spanish Flu?
Ask me, brother, for I've been through.
It is by misery out of despair,
It pulls your teeth and curls your hair,
It thins your blood and brays your bones,
And fills your craw with moans and groans,
And sometimes, maybe, you'll get well—
Some call it the flu, but I call it H--l.—*Milwaukee Journal.*

No Place For a Nervous Person

TSINANFU, China, is declared to be the noisiest town in the world. It is twenty-four hours' ride from Shanghai and fourteen hours' from Pekin, but you can almost hear its racket in both of these metropolitan cities.

Chief among the noise makers are the barrows. Much transportation is done with one-wheeled barrows, not one of which has ever been greased.

Top of this the cicadas keep up their continuous insect cry. From twilight to 2 a. m. shrill Chinese voices of food peddlers drive sleep away. Chinamen will get up any time of night to eat. And the ricksha coolies! Every one of them has a horn and a bell.

When the rest of the town begins to quiet, the dogs begin to bark, and are so thick one can scarcely walk without stepping on them.

When a "foreign devil" with "nerves" hits Tsinanfu, it generally means another little job for the casket maker.

* * *

It requires much courage to climb on the water wagon and stay there; but happy is the man who doesn't have to.

✤ ✤ ✤

Nobody sees a big hole in a little girl's stocking, but a little hole in a big girl's stocking will start a parade.

✤ ✤ ✤

We don't get business from all of our friends, but we generally make friends of all those from whom we do get business.
—V. I. W. Co.

Putting The War Stamps on a Permanent Peace Basis

By JAMES H. COLLINS

UNCLE Sam spent sundry billions of dollars to win the war—more money than any nation ever spent before in nineteen months. Result—an enormous saving in human life and time.

Buy W. S. S.

On looking over his war plant, Uncle Sam found various items of salvage—ships for the merchant marine, airplanes for the postal service, motor-truck equipment for sale, along with other physical assets like buildings, clothing and supplies, and psychological assets like army morale and the new spirit of the nation.

Among these assets was the habit of buying Thrift and War Savings Stamps.

A habit that runs up to one billion dollars in a year, ten dollars per capita, is surely worth maintenance. So Uncle Sam has been studying this War Savings Stamp activity with a view to putting it on a permanent basis.

His plans for 1919 are under way.

For one thing, there will be no chief dependence on "drives" or "stunts"—instead we shall have systematic saving, and organization.

Appeals to buy these stamps for patriotic reasons will go hand in hand with emphasis on the solid basis of benefit to whoever buys them.

When the armistice was signed November Eleventh, treasury officials got a breathing spell, and were able to take stock of the Thrift Stamp enterprise. Or rather, they got a shock. It seemed as though everybody in the United States who had been saving money to win the war felt that the crisis was over. Everybody promptly quit work to celebrate, and money was spent right and left. This was quickly reflected in stamp sales and Liberty Loan payments. Then followed weeks of demobilizing in war industries, and until workers switched over to new employment stamp sales and bond payments showed decrease.

It was found that some of the War Stamp machinery had been created largely on an emergency basis, and operated by excitement. Having won the war, it was assumed both by those who sold and purchased the stamps that the crisis was over. Hadn't Germany disarmed and wasn't the Kaiser in Holland? It was also found that some splendid permanent machinery had been created. Most notable in this line were the 150,000 War Savings societies, organized for systematic thrift on the group plan. These societies are scattered all over the country—in factories, stores, shops, banks, schools, churches, lodges, clubs, and even families. Some of them have half a dozen members, while others run to hundreds and thousands, and require division into units, with group leaders. Practically all of them are alike, however, in that members pledge themselves to invest a stated sum weekly in Thrift Stamps, and there is the element of example and fellowship to help them save regularly. Also, the group has its secretary who sells stamps, and thus both the thrift idea and the best investment in the world (United States Government securities) are brought right up to the cashier's window on pay day.

There have been instances where employers viewed the organization of these societies with some distrust, fearing that they might lead to labor troubles. Yet in many such cases employers have testified that group saving, far from causing unrest, has made employees more industrious, and loyal, and definitely decreased that evil of war-time industry—labor turnover.

Treasury officials will now work to make Thrift and Savings Stamps permanent —at least they will be continued as long as the Government must borrow on a large scale.

There will be great new issues of War Savings Stamps this year and probably in years to come. Redeemable in five years, they form a splendid short-term security, available to small investors, involving no risk and no interest coupons for collections, as is the case with bonds.

Besides safety and convenience for small investors, these stamps have become the most accessible mediums for saving in this country—if not the world. They are sold at all post-offices, and most banks, and are purchasable from mail carriers in cities and on rural routes. They are also sold in thousands of stores, factories and other places.

The Government will follow sound distributing methods in making these stamps available. By means of new savings societies and the group thrift plan they will be placed even closer to the pay envelope wherever people draw wages and salaries. To meet the needs of people who cannot conveniently join a savings society, the stamps will be placed on sale at well-chosen banks, stores and other points.

The Thrift and Savings Stamp has come to stay. It was originated during a world crisis, to supplement Liberty Bonds and give people of moderate saving power an opportunity to help finance the war. But its development during the war was so great, and it has accomplished so much good, both for the Government and the nation, that it will undoubtedly be continued long after Liberty Bond issues cease. Even should Government borrowing cease, and make Thrift Stamps unnecessary, the habits of saving and conservation formed by Americans will constitue a great national asset.

✤ ✤ ✤

Don't sing at your work—just keep the business humming.

✤ ✤ ✤

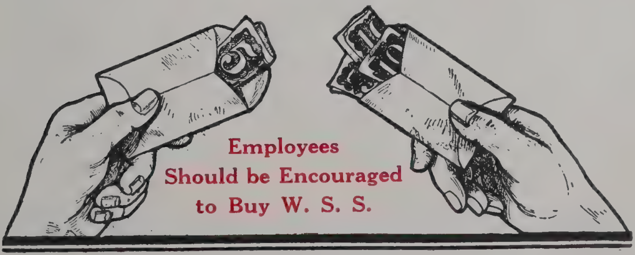
The man who lives in the past carries his headlight on the wrong end.

✤ ✤ ✤

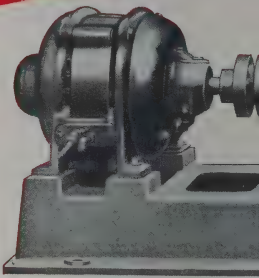
If it didn't "take" January 1st, try again.

✤ ✤ ✤

We have all heard fathers say: "I don't want my boy to have to work like I did." But why not? Work never hurt anyone—ease and idleness have ruined thousands.



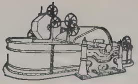
Replace Your
Iron Works Co



WHILE you have only been thinking about the possibilities of Valley Iron Works Co. Centrifugal Pumps, dozens of other mills have installed them and now have these economical pumps coining extra profits for them every day. Yesterday's extra profits are irretrievably gone, but *why lose tomorrow's?* Why not fill out data sheet on page fifteen and let us give you an estimate on Valley Iron Works Co Centrifugal Pumps that will fit your requirements and pay big dividends in increased efficiency and decreased power loss?

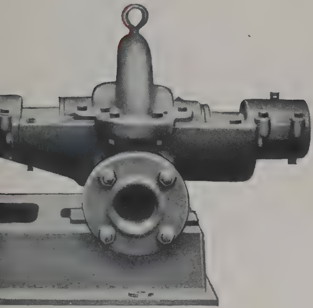
Pumps to be efficient must be built to order. One stock design will not answer all purposes. Your requirements must first be studied and a pump made to fit your own individual needs. That's the "why" of the data sheet. It eliminates guesswork and enables us to give you an intelligent estimate. There are no strings to this offer—the estimate is free and does not obligate you in any way. We will tell you what you ought to do—you can do it or not, as you think best.

The above illustration shows the Class A, double-suction, horizontal, split



d Pumps With Valley

Centrifugal Pumps



YOU?

—yes, and mail the data sheet today. See page 15

case, Valley Iron Works Co. Pump—the finest pump ever made for pulp and paper mills.

It is fitted with the most efficient design of enclosed impellers for water and acid, and a special design of open impeller for stock. In size, these pumps will range from 100 gallons per minute to as large a size as your requirements make necessary.

The equipment includes the very best ring oil bearings, located on each side of the pump, as this construction has proved the most durable because of freedom from vibration.

The horizontal split feature is a pronounced convenience as it enables you to open and examine the pump at any time, without disturbing the alignment or interfering with the pipes. The double suction eliminates absolutely all thrust, the greatest drawback in side suction pumps, causing wear and leakage and reduction in efficiency.

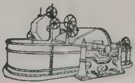
The impeller is the most important feature in a centrifugal pump. It does the work. In the Valley Iron Works Co. Pump, the greatest possible attention has been paid to this feature and we are absolutely safe in saying that our design of impeller produces more pressure with a given peripherical speed than any other impeller made—and that means that the Valley Iron Works Co. Centrifugal Pump is more efficient than any other pump we know of. The Valley Iron Works Co. Pump uses the small type of impeller, because by their use the friction losses are reduced to a minimum. A stock type of impeller is not used, but each and every impeller is individually designed to fit the service conditions. This costs money, to be sure, but it means maximum efficiency, and anything which secures this is worth the price and effort. Your experience with the pumps you now use proves this. The Valley Iron Works Co. impeller avoids all shock and eddies, and they are positively free from back pressure. Back pressure means a serious loss of head and consequent loss of power. Every impeller put into a Valley Iron Works Co. Pump is carefully balanced and is hand finished to avoid friction.

Every installation of a Valley Iron Works Co. Centrifugal Pump has backed every claim we ever made for it. What these pumps are doing for others, they will do for you.

Why not cut out the needless and costly waste of power and get better and longer service from your pumps? A saving of only five to ten per cent efficiency on pumps running continuously is enough to *pay for the installation of Valley Iron Works Co. Centrifugal Pumps—yet Valley Iron Works Co. Pumps are guaranteed to give an increase of* 15 *to* 25 *per cent in efficiency over any other so-called high efficiency pump.* That means that Valley Iron Works Co. Pumps pay for themselves two or three times every year in the actual money they save you in power and efficiency. Money saved is clear gain—it's the waste that eats up the profits. What are you going to do about it? The final decision rests with you.

Utilization of Seaweed

THE process of treating seaweed is a method of saccharifying cellulose material very similar in principle to that employed in the woodpulp industry. Factories to exploit seaweed in Sweden have been or are being erected at Varberg and Skane, probably on lines similar to those worked in Glascow, says *Nature*. Considering the enormous quantities of valuable seaweeds to be met with on our coasts, it is to be regretted that no effective steps are being taken to turn them to practical account. Although formerly of considerable commercial value, the only use that is now made of them is to a limited extent as manure on land adjacent to the shores on which they are gathered. Only an infinitesimal amount of that readily available is so used, and it seems a pity that material so intrinsically valuable should not be dealt with more efficiently.



The Manufacture of Insulating Paper

EFFORTS have been made to replace by pulp and paper many materials which in various ways serve a special purpose, and very good results have been attained. In the field of electricity, for instance, mica and other non-conducting substances were used for insulating material. We now find insulating paper most used for this purpose as it fills the requirements and is cheaper than other materials. The insulation must not only be made up of a non-conducting substance, but must also be free from substances that even in in small amounts are conductors of electricity or are capable of becoming so under certain conditions.

Every plant fiber in the form of paper or press board has the property, when dry, of insulating. On this account one need not be very particular in the choice of raw material for this purpose, but must take great care that the pulp is so prepared that a sheet can be easily made which is well closed, hard, and equally thick at all points. It is these properties which are increased by careful beating, operation of the machine, pressing, finishing, etc., more than by the choice of raw material, though some materials are much more easily worked up than others.

A good, reasonably cheap, satisfactory insulating paper can be made of raw material comprising as much as 75 per cent old paper. The rest may be jute, spinning waste, or even cheap rags. Paper shavings containing wood or free from wood are applicable. In regard to the working of old paper it should be noted that this must be done cold. Hard material is first softened cold and may be treated in the kollergang or be shredded.

* * *

A Useful Book

"What book have you found most useful?"

"A book of Browning's poems. We have a table with one short leg, and the Browning book just fits under it."

War's Lesson in Economy

W H Manss, director of the War Service Executive Committee, in enumerating some of the specific economies effected by rulings of the War Industries Board, declared that there would be an additional 18 per cent dividend on invested capital in the United States, and a revising downward in the cost of living, if the economies observed during the war are adhered to consistently in future.

"It was found that women carry about with them annually 30,000 tons of steels in the form of corsets," said Mr. Manss. "By simplifying the style of corsets half of this amount was saved to war industries.

"By simplifying the cut of men's clothes, making all coats single instead of double breasted, reducing the size of collars, omitting lapels on vests, etc., we saved enough wool to clothe 900,000 soldiers.

"Simplified styles for both men and women made available between thirty and forty million yards of material. By standardizing the size of spools of cotton thread 350 freight cars were saved for other purposes that would ordinarily be used to haul lumber to make the spools, to say nothing of the big saving in lumber.

"By packing shirts and waists in more compact form, 21,120 more freight cars were made available for war industries. Four million dollars in material and labor were saved by economizing in shoe boxes and cartons."

Oh You Henry

Gladys—My friend has a swell, new car.

George—What make is it?

Gladys—I don't remember, but I think it starts with T.

George—Must be a Ford, then, if it starts with tea. All others start with gasoline.

Chinese First to Use Vegetable Pulp

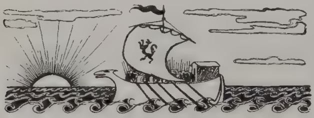
THE first people known to utilize vegetable pulp in making paper were the Chinese, who succeeded in making a writing material from the fibers of the bark of the mulberry tree, which were beaten in water which contained lye. The pulp was molded into sheets, pressure being applied by means of weights. The Chinese also made use of silk fibers.

When Samarcand, a splendid Chinese city, was seized by the Arabs, the secret of papermaking was carried to Arabia by Chinese prisoners who had been captured with the city. The Arabians, however, supplemented the knowledge gained from the Chinese by discovering the adaptability of linen and cotton fibers to the making of paper.

Through the Crusades this valuable information was carried to France in 1189. The French people were already famed for the accepting of new ideas, and for their progress in manufacturing.

It was not until about 1500 that the process of papermaking was introduced in England. The English being far behind the French in industrial work and the refinements of life, the industry grew slowly. The papermakers, however, encouraged by royalty, persisted in improvements until in 1739, there were six hundred paper mills reported in England.

American mills were granted patents at almost as early a date as the English, the first being established at Germantown, Pennsylvania, in 1690.



Sure

It cost a lot to live these days;
More than it did of yore.
But when you stop to think of it,
It's worth a whole lot more.

Affinity of Colors for Fibers

A COLOR which leaves the water in which it is dissolved and goes to the fiber placed in the solution, is said to have an affinity for that fiber. There are certain colors which have a strong affinity for certain fibers and little or no affinity for others. There are various colors of the same shade which have a certain affinity for some fibers and none for others. Auramine has an affinity for wood fiber and will dye it to a deep canary, which will not wash out, while naphthol yellow will dye the same color and will nearly all wash out. Therefore, in selecting colors it is necessary to know their behavior towards wood fibers.

Some colors will not dye fibers direct, but can be made to dye them with the aid of certain chemicals as tin, antimony, etc.

There are other colors which require acid or alum to develop or brighten them. Such colors are called acid colors. Neutral or basic colors give their strongest or brightest effect with no alum or acid, or require but little. If size is used it is, of course, necessary to use enough alum to precipitate the size.

Owing to the different nature of colors—some being basic or neutral and some being acid—it is not possible to make a mixture of the two without having one of them act chemically on the other in a harmful way.

It is much better to select for such a purpose colors that are both acid or basic, which do not precipitate each other. If incompatible colors are made use of, they should be finished last, and one at a time separately dissolved, so that one may not precipitate the other before all the stock is furnished.

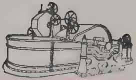
* * *

Proof

"It is wrong for an old man to marry a young fool."

"But how is he to know that she is a fool?"

"When she says yes to his proposal, he ought to know it."—*Houston Post.*

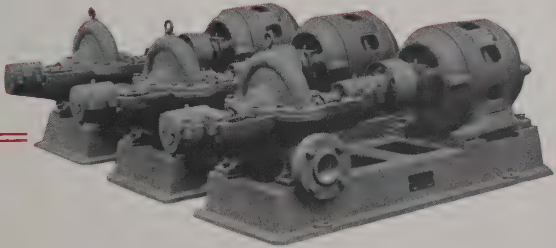


Wasted Power Wipes Out Profits

Valley Iron Works Co. Centrifugal Pumps

prevent waste, turn loss into profit and save their cost over and over again.

Use Data Sheet on Page Fifteen



If You Must Have Wrinkles Get Them From Laughing

Why Be Good?

As I walked among the paths one morning plucking flowers, I found, in the yellow heart of lady-slipper, a little brown bee. My first impulse was to shake him out of his honeyed abode, but as I looked at his velvety body and sunlit rainbow wings, a feeling of foolish tenderness surged over me. Perhaps there were baby bees at home that would starve if papa bee did not bring back honey; and how useful the little creature was, carrying the pollen from flower to flower—so I moved on, leaving him unmolested. But even as I turned away thinking these pure, sweet thoughts, the damned thing stung me.

—*Smart Set.*

✣ ✣ ✣

Pretty Soft, Pretty Soft

"She fell on his neck and wept."

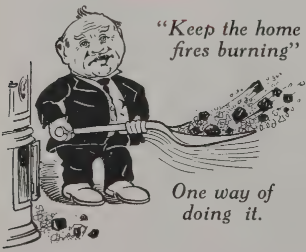
"How did it happen?"

"They were trying to learn to skate."

"Did it hurt him much?"

"Oh, no—she had on fur-topped boots, but it liked to have tickled him to death."

✣ ✣ ✣



"Keep the home fires burning"
One way of doing it.

True Heroism

He had been courting the girl for a long term.

"Tom," she murmured, "didn't you tell me once you would be willing to do any act of heroism for my sake?"

"Yes, Mary," he replied. "No Roman of old, however brave, was fired with a loftier ambition, a braver resolution than I."

"Well, Tom, I want you to do something really heroic for me."

"Speak, darling, what is it?"

"Ask me to be your wife. We've been fooling long enough."

✣ ✣ ✣

It Hurt His Eyes

A man in a crowded car had his eyes closed when the conductor reached him.

"Wake up," said the conductor.

"I wasn't asleep," explained the passenger, "but I hate to see women standing."

✣ ✣ ✣

German Tactics

"Yassah! Brudder Tump sho' flogged me, and flogged me plenty! He knocked me down and drug me around and beat and mauled me twell muh tongue hung out."

"What yo' all gwine to do 'bout it, sah?"

"Do? What kin I do? De ge'leman done disavow de whole incident!"

Send Us This Data Sheet *Today*

Note:—If the second or third question can not be answered, where pumps are now doing the work required, place a vacuum gauge on the suction pipe close to the pump and a pressure gauge on the discharge close to the pump and give us the readings, together with the distance between the level of the gauges; these with correct answers to questions 4 and 5. We can then arrive at the data sufficiently close. Care must be taken to use gauges that are reliable—then if more water is desired we can easily make provision to get it. If the installation is a new one, the capacity must be stated and the actual head given; then the size of the pipes can be designed to fit the capacity economically.

1. Number of pumps of each capacity required..............................
2. Capacity of each size in gallons per minute, if known.............
   ....
3. Total head, including suction lift and discharge pressure, and total pipe losses in both suction and discharge pipe lines
   ....
4. Length and size of suction pipe, number and kind of elbows and all valves used in the suction line, and the actual suction lift..
5. Length and size of discharge pipe, with number and type of all elbows and valves used, also actual discharge head.............
   ....
6. Type of pump, whether horizontal or vertical..........................
7. Nature of liquid to be pumped; cold or hot; clear or gritty; fresh or salt; acid or alkaline; pulp stock or other solids.........
   ....
8. If pulp stock, state percentage of density, and whether it has been screened or may contain knots or slivers or other materials..
   ....
9. If acids, state kind and specific gravity.......................................
10. If belt driven, give kind of power, and diameter and speed of drive pulley..
11. If motor driven, state current used; if direct, give voltage; if alternating, give voltage, phase and number of cycles
    ....
12. State kind of service, whether continuous or intermittent
    ....
    ....

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TRADE MARK

The Mark of Superior Pulp and Paper Making Machinery

WE build pulp and paper making machinery of every description; supply standard machines in any quantity; design special machinery to meet any requirements, and are builders of—

- **Vesuvius Oxidizing Sulphur Burners**
- **Beating, Washing and Bleaching Engines**
- **Barkers and Barker Attachments**
- **Chippers—Re-Chippers—Chip Screens**
- **Knot Screens (Revolving)**
- **Diaphragm Screens — Felt Washers**
- **Deckers (Single and Double)**
- **Stuff Chests (Vertical and Horizontal)**
- **Shredders and Special Washers for Old Paper Stock**
- **Wet Machines and Patent Roll Skinners**
- **Bronze, Semi-Steel, Lead and Iron Castings**
- **Valley Iron Works Co. Centrifugal Pumps**

Our service and advice on any question pertaining to pulp or paper making machinery is yours without charge. Put your difficult problems up to us—get the benefit of our years of experience.

■ ■ ■

Valley Iron Works Company
Appleton, Wis., U. S. A.

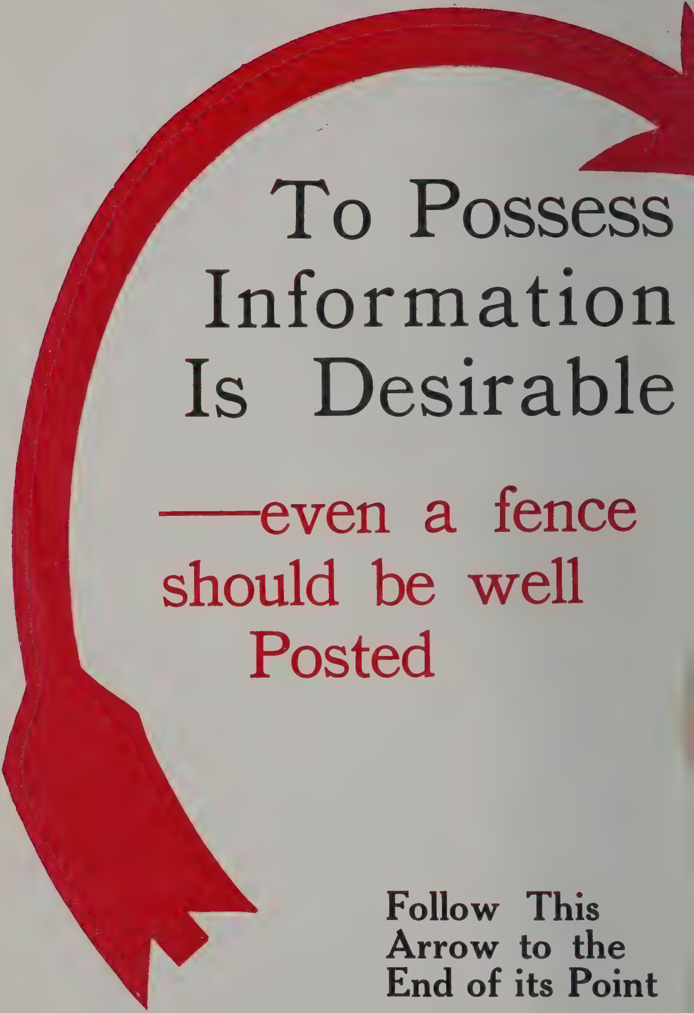
Produced by The Cramer-Krasselt Co.

7.05
EA

The BEATER

FEBRUARY-MARCH, 1919

Follow The Arrow



To Possess Information Is Desirable

—even a fence should be well Posted

Follow This Arrow to the End of its Point

The
BEATER

A Publication for
Paper and Pulp
Manufacturers

PUBLISHED BY
Valley Iron Works Co.
Appleton, Wis., U. S. A.

Volume 6 FEBRUARY-MARCH, 1919 Number 2

Paper's Part in Winning War

ON first thought scarcely any one would think that paper had any important part in actual war activities, but National President Harvy Platt, secretary-treasurer of the J. L. N. Smythe Company, in giving the general public some enlightenment on the subject said:

"Paper helped win the war. Few people realize this. But a moment's reflection will show that paper did its part and did it well. When the call came, the lumberjacks, trained to garner the raw product of the papermaker, left the camps, in the West and sailed across seas to fell trees for camp and hospital, the wood pulp makers expediting their trip and assisting in many ways. The industry was heavily hit, but there was no complaint. Then the manufacturers turned their activities to products never before made—to paper surgical dressings, paper pneumonia jackets, paper containers for shells, waterproofed paper containers for food products, rendering them safe from moisture or from poison gas and from insect depredations. Unheard of quantities of tissues were produced, that the troops might have sanitary towelings, and gun wipers. The magnitude of production may be realized when it becomes known that even in normal times the paper industry is the fifth largest user of coal and the seventh largest customer of the transportation companies of the United States. All these war activities meant of course curtailment of regular production. The paper makers agreed. They carried on conservation campaigns not only to restrict use of wood, but to economize on coal, freight cars and the like."

The Idea of Paper Clothes

CLOTHING of all kinds was made of paper in Germany during the war. The efficacious British blockade cut off so much raw material that ersatz (substitute) soon became the German byword. Thread made of paper and woven into clothing formed a material that even would stand washing. A Berlin newspaper announced recently a sale of women's and children's clothing in which the paper threads had been combined with artificial silk. Counterpanes, bedquilts, blankets and underclothing all were made of paper.

When the piratical underseas raiders were caught and when the even more piratical air bombers were brought down, the British military authorities found that the oilskins worn by the former and the "leather" jackets protecting the latter were basically paper.

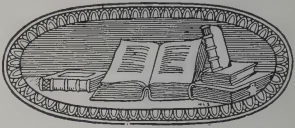
Still another use made of paper by the Germans was in driving belts for machinery, thin steel bands being inserted to take up the bulk of the strain. Harness and saddlery, of course came in for this substitute, and it is believed some of the airplane wings were made of paper in the absence of the linen and silk mixture used by allies for their aircraft.

Sewing "silks", hosiery "wool" waste and roofing "tiles" all are being made of paper. In this country for a quarter of a century some of the best freight car wheels have been made of layers of paper, compressed to a phenomenal degree by a hydraulic press and provided with steel flanges and tires.

* * *

White Paper From Old Books

IN Scandinavian paper mills, newsprint paper has been made for a long time from old newspapers and long fiber hot ground mechanical pulp. "Aside from this", says Paul Ebbinghaus, "years ago I made from 80 percent mechanical pulp, 15 percent old books and a suitable quantity of loading substance—consequently without cellulose or rag pulp—fine white paper. The old books were boiled with weak soda lye; washed and bleached. The pulp could hardly be distinguished from bleached rag whole stuff.



Because the hostilities are over do not shift into careless spending, but thrift forward into wise saving. Buy W. S. S.

Even if a man does convince a woman, she is apt to forget it and he has to do it all over again.

Many a poor man might acquire wealth by utilizing the time he wastes in bemoaning his luck.

One trouble with fate is that it hands us corned beef and cabbage when we expect pie and ice cream.

If you want to realize your ignorance, take a small child to a movie show and try to answer all the questions asked you.

Wants Congress to Act

THE following, under the caption, "Canada's Pulpwood and Dear Paper," from a recent issue of the Daily News of Chicago, shows that some publishers are beginning to see the light:

With commendable foresight paper manufacturers in the United States long ago sought to insure an adequate supply of pulpwood from the almost limitless forests of Canada. As far back as 1890 they leased crown land limits in the Dominion, especially in Quebec. To develop these leases they invested large sums in river improvements and wood preparing plants, shiping the raw material to their mills in this country. Naturally they expected the right to take out and ship pulpwood to run concurrently with the leases.

However, an "order in council" in 1910 prohibited the export of wood cut from crown lands in Quebec unless it had been previously manufactured into lumber or pulp. The effect of this prohibition was to stimulate paper manufacture in Canada and to limit it in the United States. It virtually demanded that United States manufacturers do their manufacturing of paper in Canada. In some cases their large Canadian investments have become unproductive, and vast injury has been done to the paper-making industry in the United States.

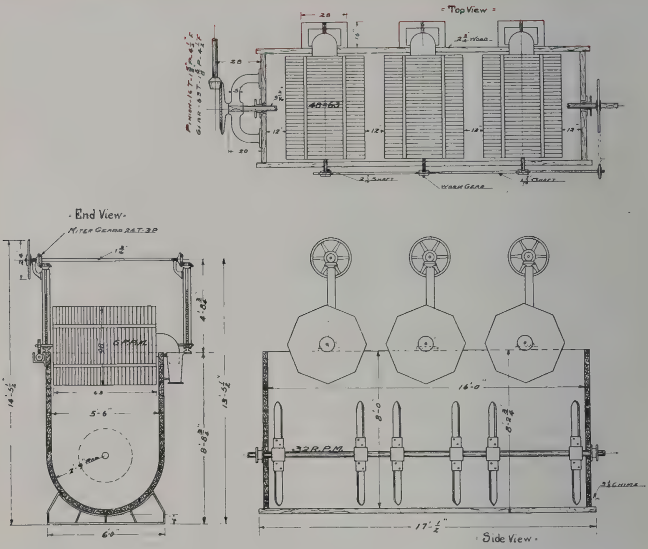
The situation was not improved through the passage by Congress in 1911 of the so-called reciprocity act, whereby our protective tariff was removed from news print and other cheap grades of paper imported from Canada. In return for this it was presumed that Canada would allow the free exportation of raw material to the United States. But Canada failed to do this.

Moreover, Canadian paper manufacturers, although their production costs are considerably less than those of the American makers, have based their selling prices on the higher manufacturing costs in the United States. That is why nearly every newspaper in the United States has been obliged to increase its selling price within the last year or two, and it is also why every user of paper in whatever form has been obliged to pay more for it.

Nine-tenths of the Canadian paper is sold in the markets of the United States, the amount having increased 2,600 per cent from 1910 to 1918. The production of news print paper in the United States was less in 1918 than in 1910.

Canada would lose nothing by restoring to American manufacturers the right to ship out the pulpwood. It is protected by restrictive provisions based on forest conservation. The annual growth on the Quebec crown land leased by United States interests would be sufficient to supply the Eastern news print mills indefinitely, while stumpage fees for the province would amount to nearly $1,300,000 annually.

The situation intimately affects everybody in the United States who uses paper. Unless some alteration is made in the position of the Canadian Government, prices of paper in this country must remain high and probably will advance. Congress would do well to take up in the coming session the question of demanding from the Dominion Government a fair deal in its relations with American paper manufacturers.



A Time and Money Saving Washer

OUR Horizontal Washers will wash old papers better and more economically than any other method. This, no doubt, accounts for their wide popularity and growing demand. The capacity of each washer is 1,500 pounds, and about 6 horse power is required for operating.

The maintenance on these washers is practically nothing, as they run slowly and take such a small amount of power that there is nothing to wear out.

Ordinarily, two or three hours' washing will get a very nice color on the stock.

Write for prices, detailed information and name of a plant near you, where you can see our Horizontal Washer at work. Do this today, while the matter is fresh in your mind.

✣ ✣ ✣

Lincoln said: "Don't fail to keep that pledge, and it will be the best act of your life." This advice applies to-day. If you couldn't keep your 1918 W. S. S. pledge, add it to your 1919 purchases.

Scientific Research in the Paper Industry

IT is certainly a pleasure to record the growth curve of pulp and paper associations. Both in the United States and Canada everyone connected with these industries is enthusiastically planning bigger, better, and more economic developments for the men in the industry, and the materials upon which they operate. When an industry such as this begins to see daylight the sun may be expected to rise rapidly.

The possibilities of scientific research as applied to the paper industries were thoroughly treated, both at the New York and Montreal conventions. It is not beyond reason that profitable industries now not thought of may be built up around the pulp and paper industries, just as similar industries surround coal tar. Investigators are meeting difficulties; they are few in number, and it is possible that insufficient attention has been given in the past to the large possibilities of using noncellulose materials. This, at least, was the opinion as expressed at the New York meeting last month.

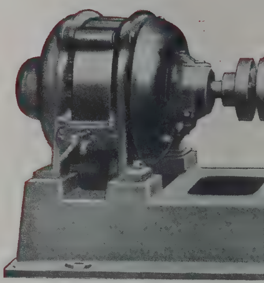
At the Montreal meeting many good papers were given before the technical section. The question of alcohol from waste sulphite liquors was taken up by Dr. Krieble of McGill University. The importance of this industry is not yet appreciated as it should be in Canada. Dr. A. E. Nielson of Chicago gave a paper on "Morterud System of Indirect Cooking as Applied to Sulphite Pulp". Perhaps the most modern movement yet made by the paper industries has been along educational lines. Technical associations, both in New York and Canada, have approved of the plan and $30,000 has been promised. The organization of this educational work has already been partly worked out. Texts and courses of study are in preparation. It is a broad scheme and any industry with such money invested should not hesitate to expend several thousand dollars, for it is obvious that without such an investment by someone, but slow progress may be made.—Can. Chem. Jour.

* * *

Razors

FOR the first time in the history of the army, razors are being issued to the troops. They are safety razors, and new blades are furnished as they are needed. The army has learned by experience that a clean shave and a good appearance greatly sustain the morale of the men.

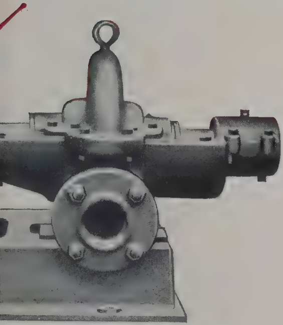
Wasted Power Wipes Out Profits



The Valley Iron Wo

THERE is but one reasonable excuse for using inefficient pumps and that is because the user is unconscious of their waste of money in power, or not aware of the fact that it can be avoided. Valley Iron Works Co. Centrifugal Pumps will stop the unnecessary waste. Rely on our guarantee for that. We are continually replacing pumps in the largest pulp mills, where fifteen to twenty pumps are required for each mill, and it would be unreasonable to suppose that these concerns would continue to scrap their old pumps and install ours if they were not finding it profitable to do so. In many places, we have replaced the out-of-date pumps and installed Valley Iron Works Co. Centrifugal Pumps that are doing the work with one-third of the power originally used.

There are some cases where the conditions bar a high degree of efficiency. That is, in cases where the speed available is not such as to permit a design that makes high efficiency possible. These cases, however, repre-



Turn This Loss Into Gain With

Co. Centrifugal Pump

sent only a small percentage of the total, and we can often suggest a change that will materially remedy the trouble—at all events, we will give you the facts and do everything possible to help remedy the conditions.

We also are glad to help in the designing of efficient pipe lines, which in many cases save as much power as the efficient pump. In fact, we have in some cases made more of a saving in the pipes than was possible in the pumps. We can not urge too strongly the importance of efficient pipe lines. As a matter of fact, you might have the most efficient pump in the world connected with a poorly-designed pipe line, and you would still have an inefficient installation.

See data on page 15. Use this form in sending your data for information on a Valley Iron Works Co. Centrifugal Pump to fit your requirements. Good business practice demands that you *at least investigate* all money saving equipment and devices whether you install them or not, so send the data sheet today and get "posted."

The Vesuvius Oxidizing Sulphur Burner and Its Many Advantages

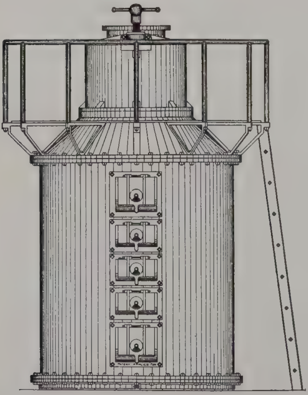
THE Vesuvius Sulpher Burner is daily demonstrating its worth in hundreds of big mills throughout the United States and Canada. It will do the same in yours. Note carefully the following ten strong features.

1st—The Vesuvius Burner has the capacity of three rotary burners, is easier to operate and requires much less floor space.

2nd—The ashes removed from this burner contain absolutely no sulpher. Therefore, there is no loss of sulpher in the cleaning of this burner.

3rd—No power is required, and no repairs.

4th—The Vesuvius Burner can be kept much longer in operation without cleaning than any other, and the cleaning process takes less time.



5th—No dirty fires, as in other burners, because the dirt and impurities are carried away by the flow of sulphur into the bottom chamber. Therefore, more sulphur can be burned and more and richer gas can be produced.

6th—No hand firing is required, except when starting up the burner; therefore no wet sulphur will enter, causing a certain amount of sulphuric acid, which means a loss in sulphur which cannot be accounted for.

7th—No steam is required. Heat self-contained.

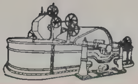
8th—Minimum floor space required.

9th—Unusually well made. Machined where essential.

10th—No expert attention is required in the operation of the Vesuvius Burner and no scientific instruments are required to determine the quality of the gas being produced, as this can be judged accurately by the color of the flame in the combustion chamber.

* * *

Victory has released the sinews of war for the conquests of peace. Build now the homes, churches, schools, roads and other things the war stopped.



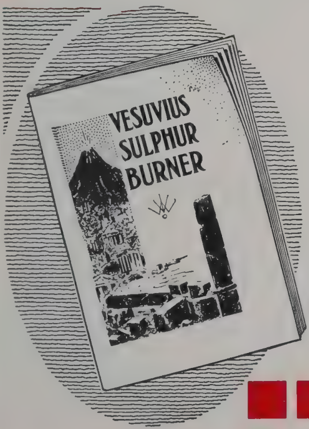
Send For Your Copy of This Helpful Book

ALTHOUGH the Vesuvius Sulphur Burner was originally designed for greater efficiency in the production of pulp and paper, it is equally efficient in burning sulphur for every other purpose.

The Vesuvius Sulphur Burner Book is a veritable encyclopedia on economical sulphur burning, and is for *all* users of sulphuric acid—pulp makers, paper makers, fertilizer makers, etc.

There's a good reason why you should get and read a copy of this book—it tells you how to increase sulphur production and cut the costs even on your present volume of production.

A copy will gladly be sent you on request—no charge, no obligations.

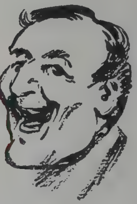


Keep This Book In Your Reference Files

This book is one that you will want to refer to occasionally. If you have not a copy in your files or if you desire additional copies, write for them today.

VALLEY IRON WORKS CO.,
APPLETON, WISCONSIN

A Few—Grin Squeezers—Old and New



Ups and Downs

"Did you call up Edith this morning?"

"Yes, but she wasn't down."

"Then why didn't you call her down?"

"Because she wasn't up."

"Then call her up now and call her down for not being down when you called her up."

* * *

Beating Father To It

"What did your little ones say when you told them there was no Santa Claus?"

"They asked me if I was just finding it out?"

* * *

What Really Mattered

Paddy was the small boy's dog and nearer to his heart than anything on earth. When Paddy was run over by an auto and met sudden death the boy's mother trembled to break the news. But it had to be, and when he came home from school she told him simply:

"Paddy has been run over and killed."

Much to her surprise he took it very quietly but five minutes after he had gone to bed there echoed through the house a shrill and sudden lamentation. His mother rushed up-stairs with solicitude and pity.

"Nurse says," he sobbed, "that Paddy has been run over and killed."

"But, dear, I told you at dinner and you didn't seem to be troubled at all."

"No; but—but I didn't know you said Paddy. I—I—I thought you said *Daddy*."

* * *

Personal

Dear Joe—Come home. Forgive and forget. I have destroyed my cook book of war-recipes. Violet.

* * *

Effective Treatment

"I hear you've had quite a spell, Aunt Jemina."

"Yes, honey, dey done tuk me to de horsepittle an' guv me a epidemic interjection."

* * *

Knew Where To Find 'Em

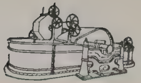
"John, I'm going to town tomorrow to see the new hats."

"You forget, dear, that tomorrow is Sunday. The shops will be closed."

"Shops? Who said anything about shops? I'm going to church."

* * *

Sing a song of Savings Stamps,
  The cost of living's high,
But have you counted all the things
  These Savings Stamps will buy?



What Is An Eight-Hour Day?

NOT a hard query to answer, one would think. And yet the National Industries Conference Board devotes a whole Research Report (No. 11) to its elucidation. An abstract of the report from which we quote below, occupies a page and a half, of *The Engineering and Mining Journal* (New York, Februery 8). The term, we are told, has been used in at least three different senses—a straight eight hours of work, with overtime prohibited; three daily shifts of eight hours each, and an eight-hour standard for payment, with overtime permitted. In discussing these distinctions the report reminds us that a "straight" eight-hour day with overtime prohibited differs from a "basic" eight-hour day with overtime permitted, not only in the number of work-hours but also in principle.

To summarize this summary further:

''The eight-hour day in its rigid sense with prohibition of overtime is founded on the theory that such limitation of work-hours is demanded on grounds of health and social advantage. The contention is also often made the straight eight-hour day is more productive than a longer work-day.

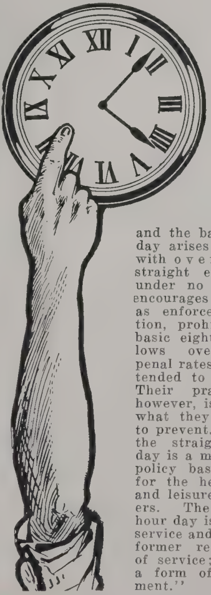
''The social grounds on which the eight-hour day is advocated do not permit of precise measurement. The factor of leisure is clearly not adapted to statistical evaluation. The contention that a straight eight-hour day increases output lends itself better to the test of definite measurement, but clear distinction must be made between hourly output and total weekly output. In occupation where hours were previously unduly long, reduction has at times been followed by an increase in hourly output. But such an increase frequently does not mean an increase, or even maintenance, of total weekly output. Obviously, the economic result of the straight eight-hour day must be ascertained by measuring the total production.

''The eight-hour shift system is in accord with the motive of the straight eight-hour day. Essentially, however, it is an arrangement for securing greater efficiency in production. It is determined by the fact that, as the calendar day consists of twenty-four hours, the only practicable choice in a continuous industry lies between two shifts of twelve hours each or three shifts of eight hours each.

''This system does not involve any organized overtime. Its effect upon output is radically different from that of the straight eight-hour day, and, as a wage-measure, it differs from the basic eight-hour day. As against either of these arrangements, the eight-hour-shift system obviously increases total production cost by offsetting the burden of idle machinery and other overhead expense.

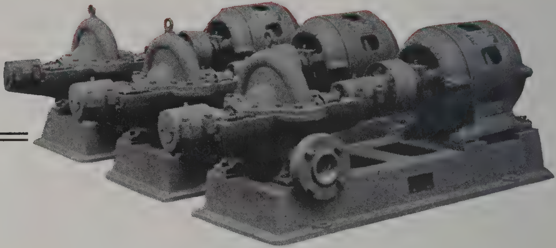
''The basic eight-hour day, on the other hand, is essentially a wage issue. Eight hours of work are taken as a convenient standard by which to measure service, any hours in excess of these in a calendar day being paid for as overtime.

''The eight-hour day, whether straight or basic in character, implies as a corallary a certain length of work-week. The straight eight-hour day naturally leads to the forty-eight-hour week.



''The basic eight-hour day implies a nominal forty-eight hour or forty-four hour week, according to whether or not a Saturday half-holiday is observed.

''In practice, the essential difference between the straight eight-hour day and the basic eight-hour day arises in connection with overtime. The straight eight-hour day under no circumstances encourages overtime, and, as enforced by legislation, prohibits it. The basic eight-hour day allows overtime, under penal rates which are intended to discourage it. Their practical effect, however, is to encourage what they are designed to prevent. In principle the straight eight-hour day is a matter of social policy based on regard for the health, welfare, and leisure of the workers. The basic eight-hour day is a measure of service and reward. The former regulates hours of service; the latter is a form of wage agreement.''



"O.K."

—a good, brief description of Valley Iron Works Company Centrifugal Pumps.

Use Data Sheet On Opposite Page

Send Us This Data Sheet *Today*

Note:—If the second or third question can not be answered, where pumps are now doing the work required, place a vacuum gauge on the suction pipe close to the pump and a pressure gauge on the discharge close to the pump and give us the readings, together with the distance between the level of the gauges; these with correct answers to questions 4 and 5. We can then arrive at the data sufficiently close. Care must be taken to use gauges that are reliable—then if more water is desired we can easily make provision to get it. If the installation is a new one, the capacity must be stated and the actual head given; then the size of the pipes can be designed to fit the capacity economically.

1. Number of pumps of each capacity required..............................
2. Capacity of each size in gallons per minute, if known.............
   ....
3. Total head, including suction lift and discharge pressure, and total pipe losses in both suction and discharge pipe lines
   ....
4. Length and size of suction pipe, number and kind of elbows and all valves used in the suction line, and the actual suction lift..
5. Length and size of discharge pipe, with number and type of all elbows and valves used, also actual discharge head.............
   ....
6. Type of pump, whether horizontal or vertical..........................
7. Nature of liquid to be pumped; cold or hot; clear or gritty; fresh or salt; acid or alkaline; pulp stock or other solids.........
   ....
8. If pulp stock, state percentage of density, and whether it has been screened or may contain knots or slivers or other materials..
   ....
9. If acids, state kind and specific gravity.......................................
10. If belt driven, give kind of power, and diameter and speed of drive pulley..
11. If motor driven, state current used; if direct, give voltage; if alternating, give voltage, phase and number of cycles
    ....
12. State kind of service, whether continuous or intermittent
    ....
    ....

Quality TRADE MARK *Service*

Come to Headquarters for Your Pulp and Paper Making Machinery

WE build pulp and paper making machinery of every description; supply standard machines in any quantity; design special machinery to meet any requirements, and are builders of—

- **Vesuvius Oxidizing Sulphur Burners**
- **Beating, Washing and Bleaching Engines**
- **Barkers and Barker Attachments**
- **Chippers—Re-Chippers—Chip Screens**
- **Knot Screens (Revolving)**
- **Diaphragm Screens — Felt Washers**
- **Deckers (Single and Double)**
- **Stuff Chests (Vertical and Horizontal)**
- **Shredders and Special Washers for Old Paper Stock**
- **Wet Machines and Patent Roll Skinners**
- **Bronze, Semi-Steel, Lead and Iron Castings**
- **Valley Iron Works Co. Centrifugal Pumps**

Our service and advice on any question pertaining to pulp or paper making machinery is yours without charge. Put your difficult problems up to us—get the benefit of our years of experience.

VALLEY IRON WORKS CO.

APPLETON, WIS., U. S. A.

TO OUR CANADIAN FRIENDS:—The Waterous Engine Works Co., Ltd., Brantford, Ont., are the Canadian agents for the Vesuvius Sulphur Burner.

Produced by The Cramer-Krasselt Co.

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The BEATER

APRIL-MAY, 1919

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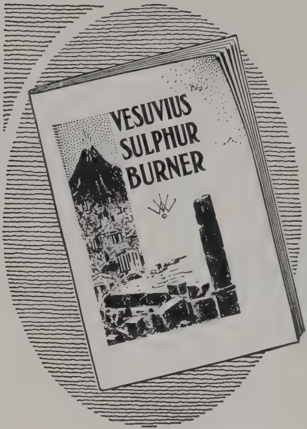
The "Burning" Question Fully
Answered in This Issue



The Vesuvius Sulphur Burner

Stands for, fights for, preaches greater efficiency and economy in burning sulphur for all purposes.

The Vesuvius Sulphur Burner is a veritable encyclopedia on economical sulphur burning, and is for *all* users of sulphuric acid—pulp makers, paper makers, fertilizer makers, etc.

There's a good reason why you should get and read a copy of this book—it tells you how to *increase* sulphur production and cut the costs even on your present volume of production. A copy will gladly be sent you on request—no charge, no obligations.

Send for this Free Book Today!

Read it yourself—pass it along to your employees—file it for future reference. "When knowledge can be had for the asking, it's a crime to remain ignorant."

VALLEY IRON WORKS COMPANY
APPLETON, WIS., U. S. A.

The
BEATER

A Publication for
Paper and Pulp
Manufacturers

PUBLISHED BY
Valley Iron Works Co.
Appleton, Wis., U. S. A.

Volume 6 APRIL-MAY, 1919 Number 3

Don't be a "Bear" on the U. S. A.

BECAUSE the world is not righting itself as speedily as it was thought would be the case, men are becoming restless, apprehensive and even captious. Because business has not at once assumed normal proportions, they are apparently disappointed and discouraged. What, pray, did they expect? Did anyone whose eyes were open to the happenings of recent years have any reason to hope for the immediate restoration of the old order of things? After a long debilitating illness the patient requires time for recuperation. This old world has been on its back for a long time. Such indeed was the severity of its ailment that for weeks its very life was almost despaired of. When at last the change came for the better, it was exhausted and emaciated by its sufferings and loss of blood. It was unreasonable to expect it to spring to its feet and go about its business.

We must not forget the past experience. For four long years the genius, the energy and the wealth of the world were primarily directed to its own destruction. Our resources were well nigh exhausted in wiping out the achievements of centuries. Everybody knows that it is much easier to tear down than it is to build up. Why then should we be discouraged because a few short weeks have not sufficed to heal the wounds inflicted in a long and mad struggle.

Taking everything into consideration the surprise is not so much that business is slow in returning to normal as it is that so much activity is apparent. Cheer up! We are really moving along remarkably well.

Made-to-Order Tanks

GOOD tanks are essential to the success of every pulp and paper mill and our wide experience can be made of inestimable value to you in designing and building good tanks for your own particular requirements.

We specialize on tanks. When you put your tank problems up to us, we don't tell you off-hand that we've got just the tank you need; and then hand you a tank from stock like a grocer hands you a bar of soap. That way of buying a tank doesn't solve your tank problems efficiently. We study your needs—*then build a tank to meet them.*

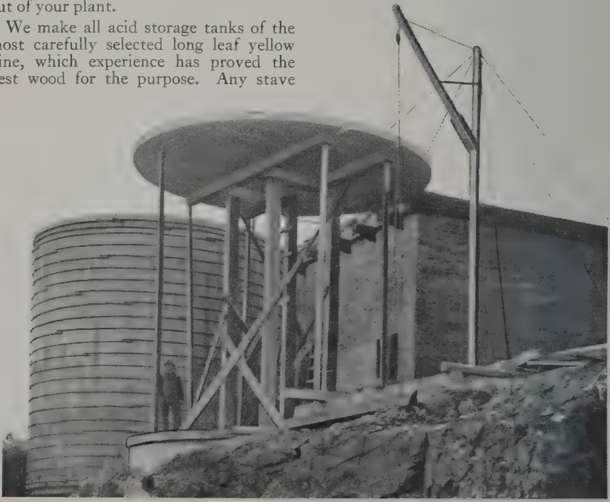
Take Acid Storage Tanks, for instance. A tank that lets the sulphuric acid leak while stored until it can be pumped into the digester, is simply letting dollars ooze out of your plant.

We make all acid storage tanks of the most carefully selected long leaf yellow pine, which experience has proved the best wood for the purpose. Any stave that has the slightest blemish that might prove dangerous in time, is discarded. When we deliver the tank you can safely bet it is perfect in all respects.

Also we use long leaf yellow pine in building blow-off tanks for the same reason we use it in making acid tanks—best for the purpose.

And we're just as careful in our selection of woods for water tanks and agitator chests as in making acid and blow-off tanks.

Tell us your tank requirements. Let us look into your needs—we'll tell you just the right kind and size to use, and if we build the tank you will get better tank value and satisfaction for your money than you ever got before.



This is a tank we "made-to-order" for a large paper mill. It is 18 feet high, 30 feet in diameter.

Think This Over, Mr. Pessimist

THE United States has only 6% of the population of the world and only 7% of the land and yet we produce:

20% of the world's supply of gold.

25% of the world's supply of wheat.

40% of the world's supply of iron and steel.

40% of the world's supply of lead.

40% of the world's supply of silver.

50% of the world's supply of zinc.

52% of the world's supply of coal.

60% of the world's supply of cotton.

60% of the world's supply of copper.

60% of the world's supply of aluminum.

66% of the world's supply of oil.

75% of the world's supply of corn.

85% of the world's supply of automobiles.

We also refine 80% of the copper and operate 40% of the world's railroads.

Before the war we owed nations five billion dollars. We have not only paid this debt, but foreign nations *now owe us ten billion dollars*. We now hold the largest gold reserves of any nation in the world.

United States troops backed by good United States brains and grit, delivered the "knockout" blow that ended the war. Don't you believe that we can successfully solve all of the problems of peace? Are you a "bull" or "bear?"

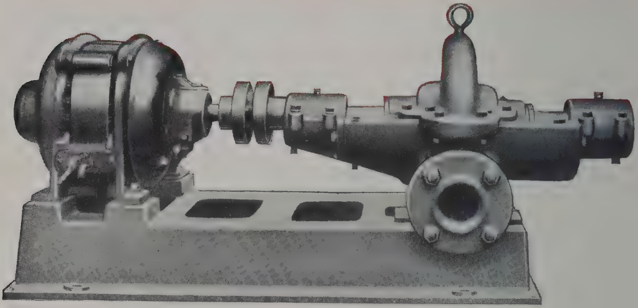
Women Chemists Make Good

THE Information and Education Service of the United States Department of Labor states that one of the industrial results of the war relating to women in industry has been the granting of places to women chemists on a par with men. With no further industrial training than supplied in the usual courses of women's colleges and universities, recent reports show women successfully competing with men who have had the advantage of special post-graduate training.

Miss Grace Macleod, a member of the American Chemical Society, recently gave the undergraduates of Vassar College some interesting figures. A questionnaire sent to 16 industrial plants, employing 368 chemists, revealed 78 women chemists employed, more than 21 per cent.

The report stated that these women were making good in every way, and their research and analysis work fully the equal and of as high a standard as that of the men.

Let's Finish the Job—Buy Victory Liberty Bonds



Bad Stomachs and Bad Pumps—What Anguish They Entail

WHEN a man's digestion is good, he doesn't know he has a stomach. Just so with pumps—when they're good, they're very, very good; but when they're bad, they're horrid.

The Valley Iron Works Company Centrifugal Pump never calls attention to itself by frequent breakdowns or other unsatisfactory service. It is built to give absolute satisfaction—and it does—day by day, week after week, year in, year out—always on the job—24 hours a day, if necessary—steadily and surely saving power, trouble, money.

Pumps that waste power are worse than junk—junk is junk, but an inefficient pump goes right on wasting power day after day and adding to its original cost an expense in operation that makes the purchase price look like two cents. On the other hand, the *Valley Iron Works Co. Centrifugal Pump* pays big dividends every day it is in operation, in increased efficiency and decrease in use of power.

Valley Iron Works Co. Centrifugal Pumps are not made up in stock sizes but are built to fit the exact conditions of speed, head and capacity — "tailor-fitted" to the job, as it were.

Put your pump problems up to us. It won't cost you a cent to find out what Valley Iron Works Co. Centrifugal Pumps will do for you. Just send along your specifications—you'll get the information without obligating you in any way whatsoever. Do this today.

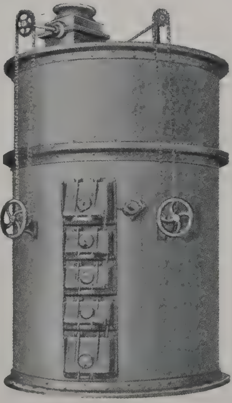
Why You Should Install the Vesuvius Oxidizing Sulphur Burner

EVERY pulp, paper and fertilizer manufacturer knows that a good sulphur burner is a necessary addition to his plant—it is not necessary to argue that point—but here are a few reasons why you should install the "*Vesuvius*" in preference to all other makes.

First, the principle of Vesuvius Oxidizing Sulphur Burner is scientific, simple, accurate, and makes for greatest efficiency in converting sulphur into sulphur dioxide with none of the waste and troubles that follow the use of flat and rotary burners.

The Vesuvius Sulphur Burner is of the round, vertical type, the top of which forms a dome or so-called "cupola," on top of which and partly entering the burner in a melting kettle. (See detailed illustrations on pages 8 and 9.)

The Vesuvius is provided with a heat resisting lining consisting of an inside fire-brick wall, laid in a mortar composed of common brick molding clay and black molasses. This lining is adhesive and of great heat resisting properties.



The sulphur is placed in this melting pot at the top of the furnace and a fire started on the uppermost of the series of trays. A handful of oiled waste is all that is necessary to start the process of melting the sulphur. The needle point valve in the bottom of the melting pot is opened slightly, releasing the molten sulphur onto the flame below. As the sulphur begins to burn, the heat increases and as the melting pot is located in the hottest part of the burner the sulphur melts very rapidly. Gradually the valve is opened wider and wider and the burning, molten sulphur drips downward from tray to tray, back and forth, until it enters the bottom chamber of the burner, where the ashes and impurities collect.

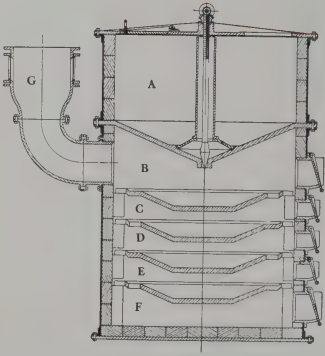
If the sulphur should be exceptionally dirty an occasional flushing of the burner is required. This is very easily accomplished as follows: Have the melting pot filled with sulphur, slow up on the feed until all the sulphur becomes melted and the lowest chamber is quite empty, then open the valve wide and let the sulphur come down with a rush until the dirt is carried down to the bottom chamber.

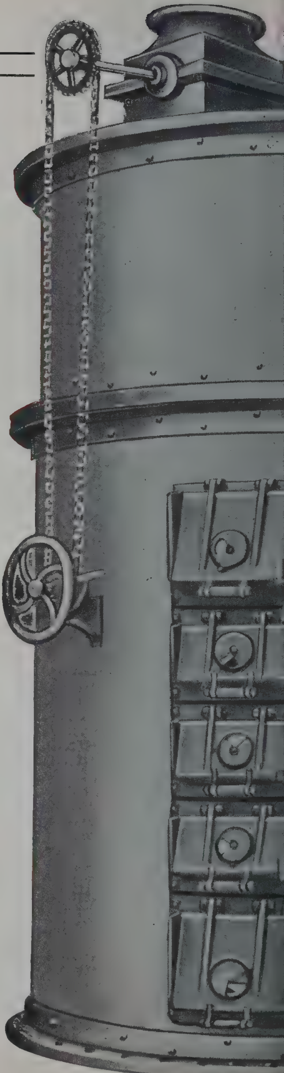
When the burner is shut down for cleaning, it will be found that every particle of sulphur has oxidized and absolutely nothing is left but ashes.

Each of the five chambers is provided with a door of an upward swinging type, admitting the air from the lowest part of the doors. Each door is provided with a damper hole through which the flow of sulphur and the color of the flame can be observed. The air flowing against the flow of sulphur makes the sulphur burn very rapidly. From the burner the gases pass through a so-called combustion chamber, which consists of a slotted pipe with a damper arrangement wherein the sulphur fumes undergo a final com-

(Continued on Page 10)

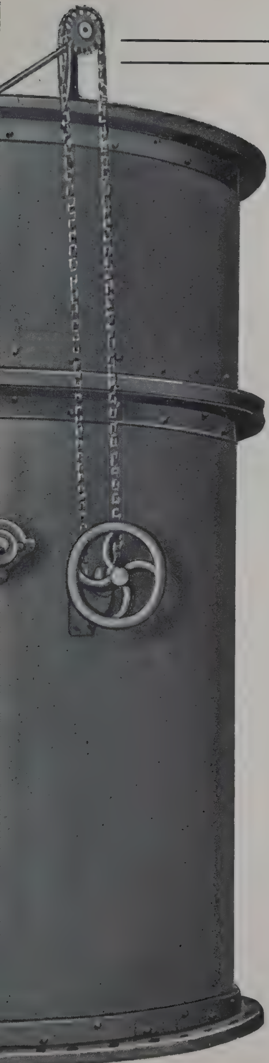
The "Vesuvius" is an All-Purpose Sulphur Burner



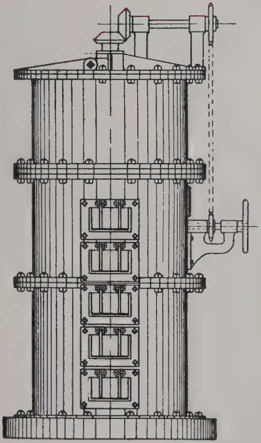


Cross Section of Vesuvius Sulphur Burner

The Vesuvius Burner is the very acme of simplicity and efficiency. Note the heat resisting base and lining. The trays or shelves are loose, merely resting on the fire brick lining, thus permitting complete expansion and contraction of the metal at all points. This insures long life without repairs.



Well Made, Durable, Efficient and Economical



Front Elevaton of Vesuvius Sulphur Burner

Constructed entirely of iron—strong and substantial. Exceptionally well made, being machined where necessary. No power—no steam required. Entirely self-contained. Easy to clean when necessary, but seldom necessary. Only two hours required for cleaning, including time necessary for sulphur to burn out after supply valve is closed.

(Continued from Page 7)

bustion. Note the sectional view on page eight.

The Combustion Chamber

One of the most marked advantages of the Vesuvius Burner is its self-contained combustion chamber, which completely oxidizes the sulphur without any waste whatsoever.

Although the sulphur fumes may leave the burning chamber in a state of semi-combustion, complete oxidation will take place in the combustion chamber.

No scientific instruments are required in order to determine the quality of the gas, and no skilled help is required to operate the burner. Simply keep it full of sulphur and have the circular damper on the oxidizer properly regulated to obtain the blue flame.

Because of this perfect regulation of air at the combustion chamber it is not necessary to closely regulate the amount of air in the burner itself. Any amount may be admitted just so it is sufficient to keep the sulphur burning briskly. The combustion chamber of the Vesuvius Burner has another great advantage in that it prevents loss of sulphur through sublimation. As you undoubtedly know, from fifty to fifty-five cubic feet of air for each pound of sulphur is required to form S02 gas of the right proportion.

The Vesuvius Sulphur Burner, because of its remarkably perfected combustion chamber, overcomes all loss through sublimation.

Frequent Cleaning Not Necessary

The Vesuvius Sulphur Burner will burn any kind of sulphur, even dirty or inferior quality of sulphur being no hindrance to the successful operation of this highly efficient burner. No matter how dirty the sulphur may be, there is absolutely no loss in sulphur through cleaning.

On the average, a Vesuvius Burner will require cleaning only once in about two weeks. The operation of cleaning requires only about two hours.

Capacity

The Vesuvius Burner will consume and thoroughly oxidize a minimum of eighteen thousand pounds (nine tons) of sulphur every twenty-four hours converting it into a rich sulphur dioxide S02. Anyone who has had any experience with sulphur burners knows that this record cannot be equalled by any other burner on the market. As a matter of fact, the Vesuvius will do the work of three rotary burners, producing a better quality of gas, and without the attention of expert attendants.

Minimum Floor Space Required

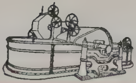
The Vesuvius Oxidizing Sulphur Burner requires a floor space of only six by six feet, or thirty-six square feet. No auxiliary combustion chambers are required, as with many other burners, and no steam is required for melting the sulphur to completely oxidize it. It requires no power, therefore no expense for belting, oil, repairs, etc.

For Fertilizer Manufacturers, Too

Although the Vesuvius Oxidizing Sulphur Burner was conceived especially for greater efficiency in the production of pulp and paper, it is equally superior in burning sulphur for every other purpose, and thus answers the anxious fertilizer manufacturer's need for a means to combat the declining production and importation of pyrites.

There is an ample supply of sulphur produced in this country to meet all requirements—dependence need not be placed on pyrites for the production of pure, highest grade sulphurous acid, because the Vesuvius will reduce the dirtiest, cheapest grade of sulphur into highest grade acid.

Write for a copy of the Vesuvius Sulphur Burner book which tells how to get an *increased* and *even* production of highest grade sulphuric acid, *at decreased cost.*



French Import Restrictions on Paper Removed

THE War Trade Board announces that the French government has removed import restrictions from a large list of commodities, including horses and cattle; animal products and by-products of all kinds, alimentary flours, fruits and grains, molasses, syrups, preserves, etc., oils and vegetable extracts; medicinal species, such as roots, herbs, seeds, etc., dyeing and tanning materials; beverages; vegetables and vegetable products, fresh dried, etc.; marbles, stones, earths, combustibles, minerals; metals; chemicals; prepared dyes; colors; various compositions, medicinal and otherwise; earthenware; glass and crystals; webbing; paper and its manufactures; skins and furs; manufactures of metals, and manufactures of various materials.

More About Those Paper Driving Belts

IN a recent issue of "*The Beater*" we made mention of the fact that paper driving belts had been introduced into many German work-shops. Here are further details of the manufacturing process.

The paper is cut into narrow bands which are then spun, and the belts are made by weaving or braiding.

Woven belts are of two kinds—paper fabric and paper thread—the fabric being more often used. The fabric is first cut into bands about 12 feet long, which are subsequently made into the desired width and thickness. A strengthening core is interposed, made of either cotton or sheet metal, though more recently the cores have been made of interwoven paper thread and metal wires. The core is encased in paper strips and the whole is then sewn with strong thread. These belts are said to be very flexible and to wear satisfactorily. The tensile strength is from 560 to 700 pounds per inch of width.

Good

"England, Damn Your Concessions; We Want Our Country," read a St. Patrick's Day banner carried through New York's streets. The place for those who regard Ireland as "our" country is not the United States, but Ireland. Nobody will stop them from going home. —*Forbes Magazine.*

Whether Barnum said so or not; if you think the American people love to be humbugged, just try it and see.

The exchange of money means nothing. The exchange of ideas may double the holdings of both parties.

How to Be Lucky

Do you want me to tell you how to be lucky?

First, everybody won't be lucky—but if you want to be luckier than the other fellow, just work harder than he does.

Take a little more interest in your job than he does in his. Start to work a half hour earlier than he does. Work a half hour longer than he does. Concentrate your thoughts on your work all the time more enthusiastically than he does. Keep it up, day in and day out, and finally you will be luckier than he is.

Do you want to be lucky under those conditions? If you do, you can count on it, you are lucky now and everything you put your hand to, will be likely to be lucky for you.

It takes hard work to be lucky but it is worth all it costs.

—*Rochester Times-Union.*

Thrift or drift? Save and have! Buy W. S. S.

A Better and More Economical Washer

OUR Horizontal Washers are saving money every day for hundreds of paper manufacturers—they will do the same for you.

This washer was invented to meet the need for a *better* washer. It was designed for the paper man who wants to get more money out of his business by reducing cost of production and bettering the quality of the product.

The capacity of each washer is 1,500 pounds, and about 6 horsepower is required for operating. The maintenance is practically nothing, as they run slowly and take such a small amount of power that there is nothing to wear out.

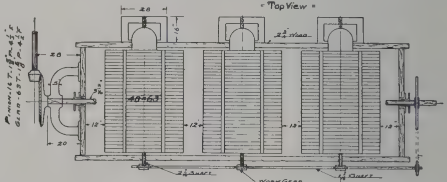
Ordinarily, two or three hours' washing will get a very nice color on the stock.

Write for prices, detailed information and name of a plant near you, where you can see our Horizontal Washer at work. We'll be glad to answer any questions you care to ask about this time and money-saving washer.

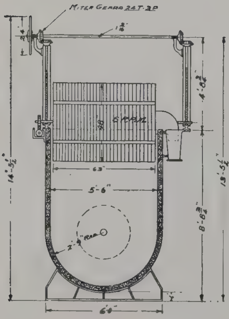
Blessed is the man who has the gift of making friends, for it is one of God's best gifts.

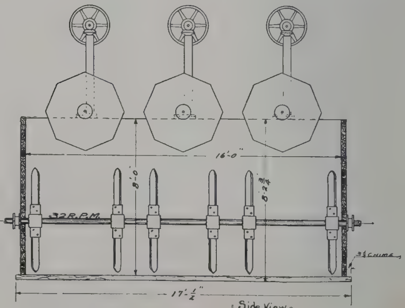
Good judgment is to business what good steering is to navigation.

- Top View -



- End View -





- Side View -

"Names is Names"

A man named Stone exclaimed in a tavern: "I'll bet a dollar I have the hardest name in the country."

"Done," said one of the company, "what's your name?"

"Stone," cried the first.

"Hand me the money," said the other, "my name is Harder."

Let's Hope So

Mrs. C.—I wonder where in the world the alarm clock has gone! I saw it on the mantel yesterday.

Mr. C.—It was there yesterday, but I heard it going off this morning.

Mrs. C.—Well, I hope it hasn't gone where you told it to go.

The Genus Trampus

The hobo knocked at the back door and the lady of the house appeared. "Lady," he said, "I was at the front—"

"You poor man!" she exclaimed. "One of war's victims. Wait till I get you some food and you shall tell me your story. You were in the trenches, you say?"

"Not in the trenches. I was at the front—"

"Don't try to talk with your mouth full. Take your time. What deed of heroism did you do at the front?"

"Why, I knocked; but I couldn't make nobody hear, so I came around to the back."

A Point of View

"Pop, what do they mean by twaddle?"

"That refers to arguments advanced by the other side."

Is That So?

"Are oysters healthy in April?" asked the Fussy Woman, as she stopped at the fish counter.

"Well," replied the Oyster Opener, "I open several hundred of them every day, mam, and I haven't heard one of them complain."

Friend Husband

He is too tired to sweep a mat,
He's too humane to kill a bug;
And he's so tender-hearted that
He cannot bear to beat a rug.

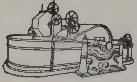
—*Luke McLuke.*

Paw Knows Everything

Willie—Paw, what are fortune tellers?
Paw—Dun's and Bradstreet's my son.

Keeping old business is alright, but there won't be any old business to keep, if you fail to cultivate new trade.

Of two evils choose—neither.



BUY
W. S. S.

Are You a Working Partner of Your Uncle Sam?

You are a citizen—probably a good citizen, everyday definition.

Are you a good citizen, *emergency* definition?

Are you an *active* good citizen, now—every day?

An active good citizen takes an active part and interest in his Government.

Puts his heart and money into the profitable partnership of U. S. and Co.

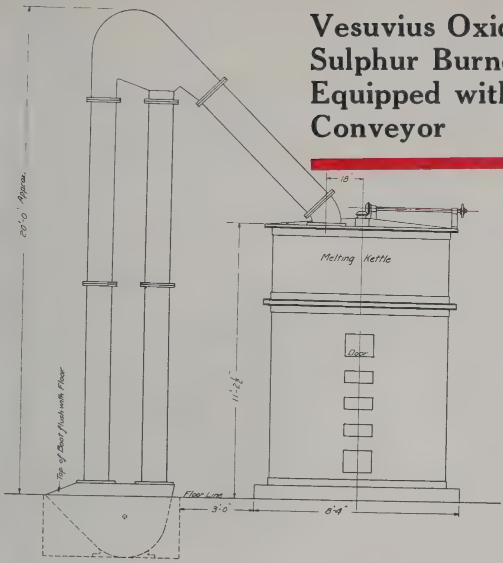
He regards it as a right—a personal privilege to own shares—Victory Liberty Bonds or War Savings Stamps—delights in understanding Uncle Sam's business.

And Uncle Sam is the best partner in the world; pays interest without fail on the money you lend him.

And returns every cent when his deal of winning the war is put through.

Good for you—good for Uncle Sam—good citizenship—

Buy W. S. S.



Vesuvius Oxidizing Sulphur Burner Equipped with Conveyor

Keeps a Sulphur Burner Busy

An idle sulphur burner earns no dividends—keep it busy. The Conveyor shown above is the busy little "slave driver" when it comes to keeping the sulphur burner busy. It is shown attached to a Vesuvius Oxidizing Sulphur Burner—it can be attached to any burner. The picture shows how it works—it is as easy to operate as to get a child to eat candy—no trouble at all.

This Conveyor attached to your sulphur burner means a supply of sulphur in the hopper *all the time*. It also facilitates weighing. Its use means a constant production of sulphite, if you desire this. The batch in the hopper can be dumped into the burner at any time and in any quantity desired—just open the slide in the neck of the conveyor. That does the trick.

Sink the receiving end of the conveyor into the floor and even a boob couldn't miss dumping the batch into it from a wheelbarrow. You need this Conveyor—because an increased production of sulphite and accurate weighing mean *profit* for you. Ask us about the price.

VALLEY IRON WORKS COMPANY
APPLETON, WIS., U. S. A.

Makers of Machinery For the Pulp and Paper Manufacturers

WE build pulp and paper making machinery of every description; supply standard machines in any quantity; design special machinery to meet any requirements, and are builders of—

- **Vesuvius Oxidizing Sulphur Burners**
- **Beating, Washing and Bleaching Engines**
- **Barkers and Barker Attachments**
- **Chippers—Re-Chippers—Chip Screens**
- **Knot Screens (Revolving)**
- **Diaphragm Screens — Felt Washers**
- **Below Pits**
- **Deckers (Single and Double)**
- **Stuff Chests (Vertical and Horizontal)**
- **Shredders and Special Washers for Old Paper Stock**
- **Wet Machines and Patent Roll Skinners**
- **Bronze, Semi-Steel, Lead and Iron Castings**
- **Valley Iron Works Co. Centrifugal Pumps**
- **Acid Tanks**

Our service and advice on any question pertaining to pulp or paper making machinery is yours without charge. Put your difficult problems up to us—get the benefit of our years of experience.

VALLEY IRON WORKS CO.
APPLETON, WIS., U. S. A.

TO OUR CANADIAN FRIENDS:—The Waterous Engine Works Co., Ltd., Brantford, Ont., are the Canadian agents for the Vesuvius Sulphur Burner.

Produced by The Cramer-Krasselt Co.

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The BEATER

JUNE-JULY, 1919

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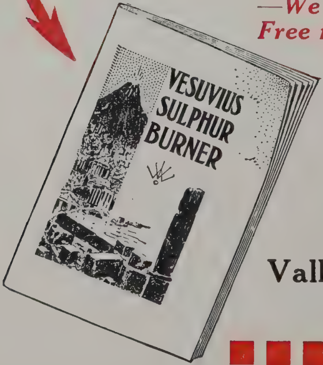
UNIVER

Two New De-Inking
Processes are Described
in this Issue—
See Pages 4 and 5.

There's a Book on the Subject of Sulphur Burning that You Should Read!

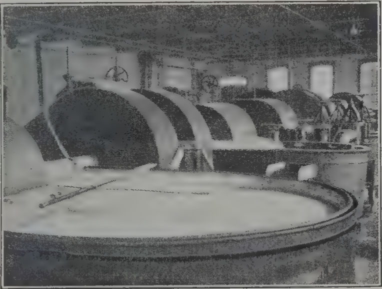
—We Have the Book—It's Free for the Asking—Write for it Today!



The Vesuvius Sulphur Burner Book is for ALL users of sulphuric acid — pulp makers, paper makers, fertilizer makers, etc. It tells how to increase sulphur production and cut costs. Get a copy for your files.

Valley Iron Works Co.
Appleton, Wis.

See Our Exhibit at the Fifth Annual Exposition of Chemical Industries, Coliseum and First Regiment Armory, Chicago. Week of Sept. 22nd.



The
BEATER

A Publication for Paper and Pulp Manufacturers

PUBLISHED BY
Valley Iron Works Co.
Appleton, Wis., U. S. A.

Volume 6 JUNE-JULY, 1919 Number 4

The Opportunities of Today

AT no time have the manufacturing facilities of this country been so great as they are today. At no time has the earning power of the American people been so high.

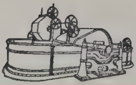
Purchasing power exists and opportunities for success are greater than ever before.

Men of vision, like Chas. M. Schwab, E. H. Gary, Cyrus H. K. Curtis, and Secretary Daniels, declare that the signing of the treaty of peace marked the opening of the greatest era of constructive effort and rapid development of civilization which mankind has ever known.

Imagine what will happen to industry, to transportation, to the development of neglected lands and neglected resources, to social organizations, to every phase of the organized life of mankind since the colossal powers and energies awakened by this war have been diverted from destruction to construction.

Before the war, the nations of the world were dimly feeling their way towards scientific methods. Now they are deliberately—yes, vehemently—harnessing science to every phase of effort and activity, and we see on every hand wonderful new applications of chemistry and electricity in the founding of new industries and the making of new products.

Are you in the procession? Are you keeping your mind alert and receptive to new ideas in your own business, and holding out a welcoming hand to science? If not, wake up and get in line for the prosperity that is at our very doors.



Two New Processes for Removing Ink and Coloring Matter from Printed Paper

American and British Patents Covering Improved Methods of Producing New Paper from Old Printed Stock

READERS of *The Beater* will be interested in this description of two patented processes for de-inking old paper. The first is that of Wesley M. Osborne, of Carthage, N. Y. He describes his process as follows:

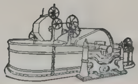
"This invention relates to new and useful improvements in processes of removing ink and coloring matter from printed papers, and consists essentially in an efficient method whereby the paper reduced to a pulp may be relieved of ink and coloring matter without injuring the fiber, the materials being used so acting upon the pitches of the pulp as to render the same substantially a sulphite fiber after the ink has been entirely removed.

"In carrying out my process, the old printed papers are placed in a digester, nearly filling the same, and to which is added a weak solution of sulphurous acid, H_2SO_3, such as is used in sulphite plants, and to which is added sodium carbonate, NA_2CO_3, in powdered form, to cause the necessary reaction. In the reaction ensuing the CO_2 gas will have a great effect upon the pulp, and sodium sulphite will be formed during the reaction, and which will act as a bleaching agent.

"An excess of sulphurous acid is required in order to cause a chemical reaction, and the amount of sodium carbonate may vary along with that of the sulphurous acid. In practice, the sulphurous acid should be of ordinary strength, while the carbonate of soda, or soda ash, is made into a solution in order to dilute the acid strength without being too quickly weakened.

"I have found that good results may be obtained with two parts of the sulphurous acid to one part of the solution of sodium carbonate. After the ingredients have been placed within the digester, steam is applied, causing a circulation of the papers, slowly at first, until the temperature and pressure rises, and after

See Our Exhibit at the Fifth Annual Exposition of



which the contents of the digester is cooked rapidly, retaining as long as possible the gases which are given off.

"When the stock has been sufficiently treated, the digester is blown, the stock washed and screened and ready for direct use in making paper and pressing into laps.

"By this process, I have found that a high grade of pulp is obtained, differing slightly from the original sulphite pulp, relieved of pitches, and being of a suitable consistency for use in the making of paper."

What Is Claimed

What Mr. Osborne claims to be new is:

A process of removing ink and coloring matter from printed papers, consisting of treating the papers in a digester to the action of sulphurous acid and sodium carbonate, the proportion of sulphurous acid being in excess of the sodium carbonate, applying heated steam to the solution, causing the papers to circulate, slowly at first, gradually raising the temperature and pressure, and cooking the contents of the digester rapidly, the pulp being bleached by the sodium sulphite produced by the reaction of the sulphurous acid and sodium carbonate.

The British Patent

A British patent has recently been granted to Jacob Arie Van den Knapp, of Selingen, Holland, and Bernadus J. Bartelds, engineer, Apeldoorn, Holland, for an improved method of utilizing old paper with the object of producing new paper.

The specification, says the *World's Paper Trade Review*, describes the special operation for producing de-inked fibrous pulp from old paper by washing, after the paper has been boiled in a soap solution in the boiling vessel in such a manner that the hot wash water is intermittently laid in at the bottom of the boiling vessel, and the wash water flows off at the top.

By this method, it is claimed, the fibers are continuously agitated during the boiling operation, the dissolved printing ink separating itself from the layer of paper and flowing off inwardly, while, when the wash water is admitted, the fiber settles to the bottom. If, subsequently, hot water is admitted, the fibers are stirred up again and will remain floating in the water, so that the printing ink left over will be dissolved, and when the hot water is turned off will rise again, whilst the fiber floating in the water settles once more at the bottom.

■ ■ ■

Some men resemble the men they imagine themselves to be about as much as a box of animal crackers resemble a "zoo."

Determination reduces hard work to nothing. Procrastination makes hard work out of nothing.

Going in with your mind on winning is the first essential to making a success in any work you may undertake. Half-hearted effort will not take you very far in any line of endeavor.

Loyalty is the finest fibre in the human breast—it awards alike the humble and the great—makes the small man big and the big man bigger.

Skin Without Getting "Skinned"--an Easy Matter When You Use the Hanson Automatic

THE Hansen Improved Automatic Roll Skinner is the sole satisfactory solution of the pulpmaker's problem of skinning the roll. It takes out all uncertainties and puts the work on a modern, efficient, profitable basis. By the old method of employing a boy to skin the roll, the manufacturer had to contend with much expense and waste. When the boy was not on the job the result was damaged or uneven stock. Half the time when he was on the job he was punching holes in the felt and putting the machine on the blink—with resultant repair expense.

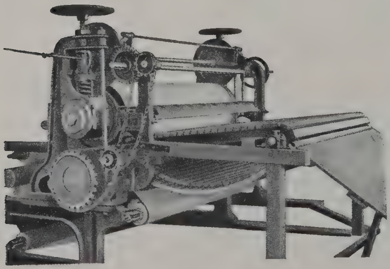
But don't blame the boy. You seldom find an old head on young shoulders, so give the boy a square deal and yourself better results by installing a Hanson—the fool-proof, boy-proof, automatic roll skinner.

With the Hanson Automatic a boy can't do a cent's worth of damage to felt or stock. Moreover, he can handle *two* wet machines. He doesn't touch the machine at all—his job is simply to see the machine is kept running, and then fold the sheets of stock that the Hanson automatically skins and delivers to the table.

The Hanson Automatic does away entirely with weighing the bundles. The machine is adjustable to any desired weight—it does not matter how heavy or light the stock runs, it will never skin the roll until the desired amount of stock has accumulated on the roll. An automatic counter can be attached for tallying the sheets.

Every sheet that comes out of the Hanson Automatic can be positively depended upon as being the exact weight desired—and every sheet in the job will be absolutely uniform in size, thickness and weight.

Surely this opportunity of making more money and turning out *better* work at *decreased cost* is worth looking into. Good business judgment demands that you at least make a careful investigation of all labor-saving, cost-reducing, profit-making equipment. Do so, *Now!* Make us *prove* our claims. We're ready — are you?

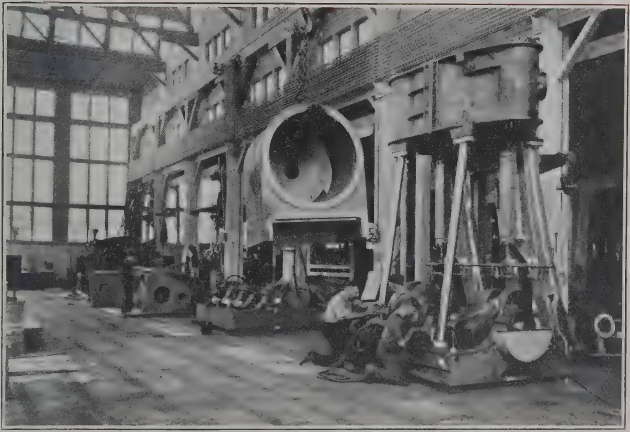


Pulp Experiments in Australia

A REPORT has reached this country in connection with pulp-making experiments in Australia, as follows:

"A bulletin written by Gerald Lightfoot has been issued by the Commonwealth Institute of Science and Industry, summarizing the available information on the suitability of Australian raw materials for making pulp for the manufacture of paper. Results are given of interesting experiments carried out in France on the pulping qualities of Australian eucalypts, some of which gave excellent results. If, it is remarked, these reports are confirmed, the cultivation of forests may prove to be practical commercially, while there might be in existence forests of immature trees which could be used commercially for paper pulp.

"Results of experiments made by I. H. Hoas, Technical School, Perth, showed successful results with karri trees, and it was possible that spruce could be profitably grown for pulping in the mountainous parts of Victoria and Tasmania. Tests had also been carried out on the pulping qualities of a number of Australian grasses; some were favorably reported on."



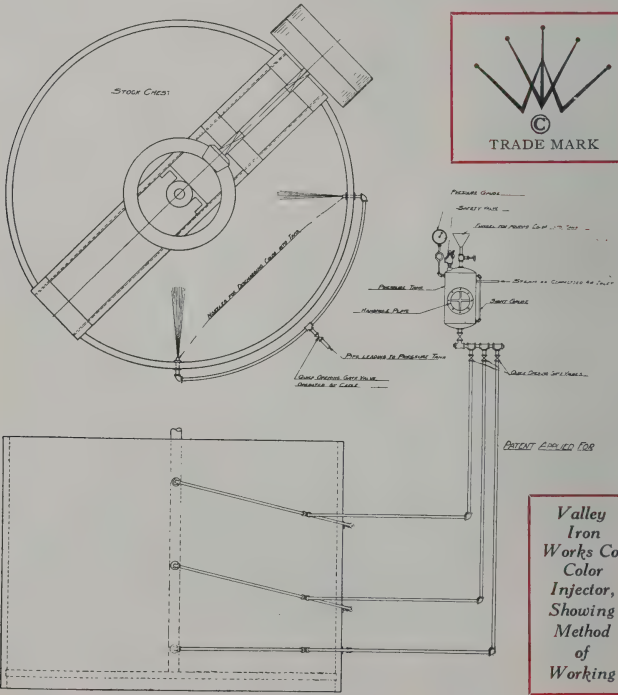
Partial View Valley Iron Works Company Erecting Room

You Don't Have to "Trust to Luck" With This Machine

IF you still continue to *guess* about colors, it's your own sweet fault for the Valley Iron Works Company Color Injector makes it possible to get the *exact* shade you want regularly and uniformly—anytime—*all* the time. And that is an absolute, positive, provable fact. We'll prove it to you here and you can prove it to your own satisfaction in your own mill.

The ordinary method of securing the proper shade in the beater is a very

©
TRADE MARK


Stock Chest
Nozzles for Discharging Color into Tank
Pipe Leading to Pressure Tank
Quick Opening Gate Valve Operated by Cable
Pressure Gauge
Safety Valve
Funnel for Pouring Color into Tank
Steam or Compressed Air Inlet
Pressure Tank
Sight Gauge
Handhole Plate
Quick Opening Gate Valves
Patent Applied For

Valley Iron Works Co. Color Injector, Showing Method of Working difficult one, as you well know, and an order for paper of a certain shade is often the source of much trouble and profanity in trying to match the sample.

Many a time the superintendent is not certain he has the right shade in the beater when he empties the batch into the stuff chest. Then when the machine is started the color may not be right, which necessitates stopping the machine, and a consequent delay of from a half-hour to an hour to mix color.

The method of putting color into the jordan discharge or into the jordan chest and machine chest is always a slow, tedious, time-wasting process.

Why not be up-to-date and install the Valley Iron Works Company Color Injector? This machine—the only one for the purpose in the U. S. A., takes *all* the guesswork and uncertainties out of color mixing.

It sprays the color, under a pressure of 100 to 125 pounds, right into the batch and makes a perfect job absolutely certain—takes only five to ten minutes to do it, so there is no time lost.

The old method of mixing color in the stuff chest takes from a half-hour to an hour, and then you never know whether the color is right or not. With our machine, the results of off-color can be corrected in five to ten minutes. It makes absolutely certain the job of matching paper to sample. There's no chance of getting color too high, unless you do it deliberately. Therefore, our machine does away with the tedious and time wasting process of adding stock to overcome high color.

The Valley Iron Works Company Color Injector is worth its weight in gold dollars to you. It pays for itself many times over in the time it saves. It saves money by not wasting stock as the present method of mixing color certainly does. It enables you to turn out a job that matches the sample perfectly, and gives you prestige thereby.

Isn't it money in your pocket to have the colors *right* throughout the job? Isn't it money in your pocket to eliminate the long delays due to mixing color?

There are other good reasons why you should install the Valley Iron Works Company Color Injector, but these we've mentioned certainly ought to be sufficient to convince you that our color machine in your plant will make your bank account flourish. Why not look into this matter of *extra* profits?

Ask us for any further information you'd like—we're anxious to have you investigate this machine. We know investigation always leads to purchase, although there's no obligation to buy.

■ ■ ■

Success is a poor caller. The fellow who gets it—*goes after it.*

This is a wonderful country and it's full of wonderful opportunities.

In the month of June, payments by the War Risk Bureau to soldiers and their dependents amounted to about $31,000,000.

A note of alarm over American competition with Great Britain in the shipping trade to South America, South Africa and Australia is reported from London, a speech in parliament touching upon the subject.

Just What Billion Means

WE hear of billions these days, but it is probable that very few persons have any notion of what an enormous amount of money a billion represents, says an Exchange.

We do know, however, how rapidly an expert counter of coins manipulates them. You can scarcely follow the motion of his fingers as he shifts the coins from one pile to another and counts them. The experts in the treasury department will count 4,000 silver dollars an hour and keep this up all day long, but that is their limit.

Working eight hours a day, then, an expert counter of coin will count 32,000 silver dollars in a day, but how long will it take him at that rate to count a million dollars? Thirty-one days.

But that is only the beginning of the measurements of great figures, for if the same man were to continue to count silver dollars at the same rate of speed for ten years he would find that he had counted only 100,000,000 of them, and that to count 1,000,000,000 of them would require 102 years of steady work at the rate of eight hours a day during every working day of every one of the 102 years.

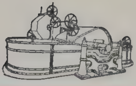
Whatta You Want for $10

"Look here," said the head of the firm, addressing the new stenographer, "this letter is all wrong. Your punctuation is very bad and your spelling is worse. I can't afford to send out any such stuff to my clients." "Well," she replied, "I'm sorry if my work don't suit you, but was you expectin' to get a Mrs. Noah H. Webster for $10 a week?"

We'll Say So

The man who invented "near-beer" was a darn poor judge of distance.

Two Car Loads of Valley Iron Works Company Equipment Ready for Shipment.



Give Your Child a Hand Grenade

FIFTEEN million hand grenades will become coin savings banks for American school children under a plan announced recently by the savings division of the Treasury Department. The one-time weapons were manufactured for delivery to the American Army, but the armistice came along and the War Department decided to sell them for junk.

The Treasury, however, thought the souvenir value of the weapons should be preserved, and accordingly took them over. Each grenade, minus all explosive materials, of course, will be provided with a slot into which either pennies or dimes may be dropped, and will be lettered, "Buy W. S. S."

■ ■ ■

He who works when he does not have to work will not have to work when he does not want to work.

We have a call to do good as often as we have the power and occasion.

New Association of Mill Superintendents

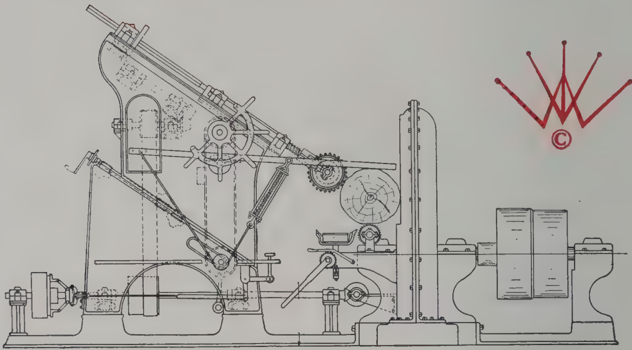
A NATIONAL organization, to be known as the American Pulp and Paper Mill Superintendents' Association, was formed at a meeting in Appleton, Wis., of twenty-five superintendents of paper mills of Wisconsin.

The purpose of the organization is to bring problems confronting the superintendents before the association, and to establish a closer bond between the men. F. C. Boyce, of the Wausau Paper Mills, presided as temporary chairman.

William C. Nash, of the Lakeside Paper Company, Neenah, Wis., was chosen national president; J. H. O'Connell, of the Northern Paper Mills, of Green Bay, Wis., was elected vice-president and Peter J. Massey, of the Paper Industry, Chicago, secretary and treasurer.

ALL PAPER AND PULP
MANUFACTURERS
Should Attend the Fifth
Exposition of Chemical Industries
To be held at the
Coliseum and First Regt. Armory
CHICAGO
Week of Sept. 22, 1919
SEE OUR EXHIBIT

The "Ideal" Barker



—Ideal from Every Standpoint of Efficiency, Durability and Economy

THE "Ideal" is a *final-type* barker—a composite model embracing every desirable feature you have had in mind—and possibly possessing other good features you never even thought of.

Yes, sir, if you want a barking machine that is absolutely *there*—the "Ideal" is it. It stands every test, it meets every condition, it defies competition.

Our claims for this barker are not based on theory or guesswork, but on careful records of results in many of the biggest pulp and paper factories where these machines are in daily use. These carefully checked tests prove, beyond the shadow of a doubt, that the "Ideal" will meet every requirement that makes for efficient barking.

It barks better—

It wastes less wood—

It works more economically—

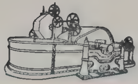
It requires but one man to operate it—

It saves labor costs from the very minute you put it in operation.

The starting and stopping of the cross conveyor or the feeding of the wood to the barker, is entirely an automatic process, controlled by a hand wheel.

The spur wheels which operate the wood can be stopped at any point for the removal of bark or knots on one side of the stick, without taking off an equal amount of the wood from the opposite side of the stick.

See Our Exhibit at the Fifth Annual Exposition of



Thus it saves a lot in labor costs. Now here's what it will do.

The 6-foot barker equipped with the "Ideal" will bark wood from 32 inches in diameter and 2 feet in length, down to 4 inches in diameter. The 5-foot machine has a range of from 18 inches down to 4 inches in diameter. The 6-foot machine will also bark wood in 4-foot lengths that range in diameter from 4 inches to 9 inches.

Read this schedule of the capacities of the "Ideal" covering both 5-foot and 6-foot barkers. These figures are not derived from a test run, but from an actual, everyday run under everyday working conditions. Furthermore, the figures of the run were discounted somewhat to make allowance for any mishap, so that the figures herewith are *understated*, and do not represent maximum capacity for an everyday run. We will *guarantee* these capacities on the same machine working under like conditions in *your* plant.

What the Tests Show

On spruce wood,	4 to 8 in. diameter,	20 cords per 10 hrs.	4 x 4 x 8 ft.
On spruce wood,	8 to 20 in. diameter,	30 cords per 10 hrs.	4 x 4 x 8 ft.
On hemlock wood,	4 to 8 in. diameter,	18 cords per 10 hrs.	4 x 4 x 8 ft.
On hemlock wood,	18 to 32 in. diameter,	25 cords per 10 hrs.	4 x 4 x 8 ft.
On hemlock wood,	21 to 24 in. diameter,	35 cords per 10 hrs.	4 x 4 x 8 ft.
On hemlock wood,	20 to 24 in. diameter,	38 cords per 10 hrs.	4 x 4 x 8 ft.

The waste ranges from 18 per cent to 21 per cent, according to the condition of the wood.

* * *

Recovery of Waste Paraffined Paper

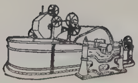
THE Forest Products Laboratory of the Forest Service, at Madison, Wis., has just made the following interesting report on the recovery of waste paraffined paper:

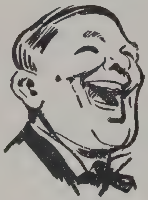
"In the process of manufacturing paraffined paper and various products such as cartons, cups and wrappers, large quantities of impregnated paper stock are now wasted. In the making of paraffined paper alone, it is estimated, the daily waste amounts to 8 to 10 tons.

"An opportunity for the recovery of a large part of such waste paper and impregnating material is offered in the application of a method recently developed at the laboratory, providing mill trials are as successful as the semi-commercial laboratory work indicates.

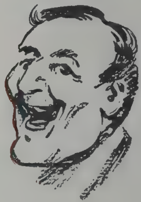
"The recovery method consists in treating the finely shredded waste with petroleum oil solvent in a series of extractions, which removes practically all the paraffin. The paraffin is afterwards separated from the solvent, which is used again. The solvent left clinging to the extracted paper is also recovered by a steaming process.

"A paper fully as strong as the original can be made from the remaining pulp."





Good for a Laugh or Two



His Independence

"Who is really boss in your home?" inquired the abrupt person.

"Well," replied Meekton, "of course Henrietta assumes command of the children, the servants, the pug dog and the canary. But I can say pretty much what I like to the goldfish."

Camouflage on the Farm

The honest farmer's berry crop
Has been dispatched to town.
The boxes look this way on top
0 0 0 0 0 0 0 0 0 0 0 0
And this is lower down:
o o o o o o o o o o o o o

Yes, Indeed

"Ethel, can't you tell us the shape of the world?" asked teacher encouragingly. "Yessum; it's in a pretty bad shape just now," replied the precocious child who had heard her daddy say a few things at home.

Go Head, Dearie

The teacher of a primary class was trying to show the children the difference between the natural and man-made wonders and was finding it hard.

"What," she asked, "do you think is the most wonderful thing man ever made?"

A little girl, whose parents were obviously harassed by the question of ways and means, replied as solemnly as the proverbial judge: "A living for the family."

Nomenclature

A negro was in a Georgia town police court, charged with assault and battery—he had "busted" another negro over the head with a brick. The negro was well known to the judge.

The judge inquired: "Why did you hit this man?"

"Jedge, he called me a damn black rascal."

"Well, you are one, aren't you?"

"Yessah, I is one. But, Jedge, sp'se somebody'd call you a damn black rascal, wouldn't you hit 'em?"

"But I'm not one, am I?"

"Naw, sah, naw, sah, you ain't one; but sp'se somebody'd call you de kind o' rascal you is, what'd you do?"

See Our Exhibit at the Fifth Annual Exposition of

Paying Wages Through a Bank Account

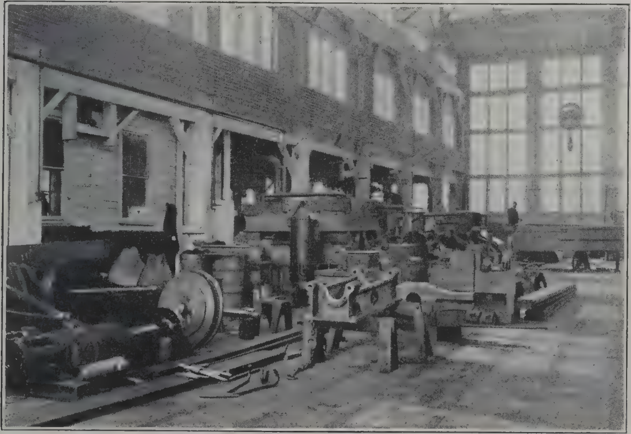
NOT long ago the manager of a big industrial plant saw several hundred of his employees crowded around the paymaster's window, drawing their wages. It struck him that this was not only a waste of time, but that it was an undignified scramble for the money they had earned. It seemed as though a more modern method of paying wages might be contrived.

Going back to his office, he worked out a plan that combines dignity, time saving and thrift.

Instead of asking employees to congregate around the pay window, they may open a checking account at any bank selected by themselves, and the company deposits wages there each week to the employee's credit. The employee then pays household bills by check, draws out whatever cash is needed, and leaves the balance in the bank as savings.

Before the war, a dollar belonging to an employee and a dollar belonging to the employer, were seldom on speaking terms. They represented two entirely different kinds of money and never combined for teamwork.

But war finance broke down this "class consciousness" between the two dollars. When employees bought Liberty Bonds or pledged themselves to take a certain number of Thrift Stamps weekly, the employer volunteered to do the accounting, deducting bond payments from wages and slipping Thrift or War Savings Stamps into the pay envelope. This brought a new viewpoint to both parties. The wage earner saved money for the first time in his life, and the employer felt that thrift had a stabilizing value in his work force.



Another View of the Erecting Room, Valley Iron Works Co., Appleton, Wis.

Chemical Industries, Chicago, Week of Sept. 22nd.

What is Your Problem?

Our thirty-five years of actual, practical experience and our modern engineering department is at your service to help locate and overcome all difficulties connected with pulp or paper making machinery. Put your problems up to us. Consultation is free of charge and without obligation on your part.

We design pulp and paper making machinery to meet any requirements; supply standard machines in any quantity, and are builders of—

- **Vesuvius Oxidizing Sulphur Burners**
- **Beating, Washing and Bleaching Engines**
- **Barkers and Barker Attachments**
- **Chippers—Re-Chippers—Chip Screens**
- **Knot Screens (Revolving)**
- **Diaphragm Screens — Felt Washers**
- **Below Pits**
- **Deckers (Single and Double)**
- **Stuff Chests (Vertical and Horizontal)**
- **Shredders and Special Washers for Old Paper Stock**
- **Wet Machines and Patent Roll Skinners**
- **Bronze, Semi-Steel, Lead and Iron Castings**
- **Valley Iron Works Co. Centrifugal Pumps**
- **Acid Tanks**

VALLEY IRON WORKS CO.
APPLETON, WIS.

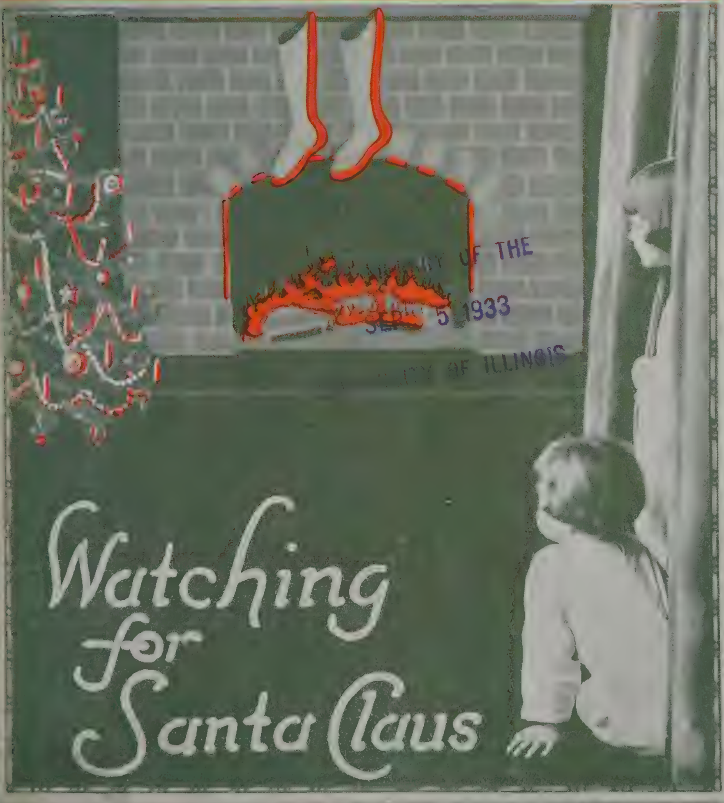
To Our Canadian Friends—The Waterous Engine Works Co., Ltd., Brantford, Ont., are the Canadian agents for the Vesuvius Sulphur Burner.

Produced by The Cramer-Krasselt Co.

538.05
BEA

~~Comm RR. Engineering Library~~

The BEATER



Watching for Santa Claus

OF THE
SEP 5 1933
OF ILLINOIS

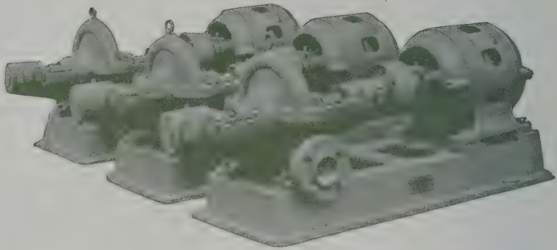
Centrifugal Pumps

Manufactured by

The Valley Iron Works Co.

Appleton, Wisconsin, U. S. A.

Are Described Briefly Below



"O.K."

The
BEATER

A Publication for
Paper and Pulp
Manufacturers

PUBLISHED BY
Valley Iron Works Co.
Appleton, Wis., U. S. A.

Volume VI DECEMBER, 1919 Number 6

The Season's Greetings

HOW often we have sent out our holiday greetings by word or by letter to those whose friendship is dear to us!

We mean those good wishes, too. They are more genuine and heartfelt than many of the things we say politely through our hurried, worried business year. We delight to repeat them.

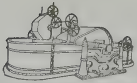
A Merry Christmas and a Happy New Year to you friends who read *The Beater* this month.

We mean this for you, and if in any way we can help you to make your dreams come true and help you to realize your rightful ambition to become successful and prosperous and happy through your 1920 plans and labor, we will lend a hand quickly and cheerfully.

And if you feel the same way toward us, we know that this mutual good wish and good will cannot fail to do us all good.

Again! All together! A Happy Christmas and New Year to you!

And, as Tiny Tim said: "God Bless Us--Every One!"



Use *The Beater*

THE Beater is read by a good lot of people with a good lot of brains. It is published for a purpose and not just for fun. Besides the helpful information carried by the descriptions of machinery and equipment, there will be equally helpful articles that relate to operations of that machinery.

Help Someone Else
to Have
A Merry Christmas
and
A Happy New Year

The readers of this little magazine have a fund of information that would be mighty useful if passed around. You know something that no one else knows so well as you do. Some one else knows something that no one knows so thoroughly as he does.

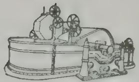
This is the age of service, and we may say right here that there is no service that is not paid for in some way or other. Directly paid wage or salary, you know, is not the only kind of compensation for service given. There are a hundred ways by which we are paid for giving a good boost to someone who needs a lift.

Use *The Beater* as a means of telling about your difficulties large or little. Then use the next *Beater* to reciprocate in the aid given each other. You are working under similar conditions with others in the same business. However, different local troubles are developing constantly. You have yours and another man has his. Tell the publishers of *The Beater* about them and a publicity will be given such matters that cannot fail to be of value to all of us.

Now let us act upon this suggestion this week. We want brief questions, and will see that they are answered in short, snappy authoritative replies. We prefer that all queries shall be signed, but the signature need not be published if the inquirer does not so desire.

Our plan is to make this service of real interest to readers and of genuine advantage to those who ask for aid and advice. Will you co-operate?

Come on in, and help us all to pull together. You know that the man who lives for himself is soon buried and forgotten. If you have a "hunch" that is good, pass it along. It will be good for the whole business. At the same time you are doing a service that will have its own reward, sure. We never knew it to fail.



Water Soluble Brown

Natural Deposits are Found Here in America—Shall We Continue to Import?

MATERIAL for the manufacture of the Cassel browns is imported in a form insoluble in water and worked over into soluble form. A sodium carbonate solution is used for extracting this material which is used in large quantities in the American paper trade.

You May Not Believe
in Santa Claus
But You Do Believe
in the
Santa Claus Spirit

During the war the Vandyke and Cassel brown rose in price to seven cents and more per pound. Even at that price it was hard to get. It was wanted badly for coloring paper, as it is fixed easily by the use of certain acids or electrolytes.

The situation two years ago wakened the color experts, who found that some of our American deposits were equal to the imported material. Prof. Chas. A. Davis, of the United States Bureau of Mines, made the following notes after an extensive investigation of the American deposits, referring particularly to the brown organic matter, of lignite characteristics, found six miles east of Hanna, Wyoming.

"It is sticky, viscous, and nearly solid, dissolving readily in water to a dark-brown liquid, which becomes yellowish in dilute solution. It is insoluble in alcohol (absolute) benzol, xylol, chloroform, benzine, or other common organic solvents. The solution in water is seemingly collodial. The residue insoluble in water consists of a clayey silt or sand and finely divided organic matter, chiefly plant remains.

"The color may be precipitated from solution on paper by alum, barium chloride, or other metallic salts in the same manner as the brown obtained from the imported material (soluble) is seemingly fully as good as that of the imported brown, and possesses the advantage that it is already in the soluble form, whereas with the imported brown dilute alkali must be employed to effect solution. Dilute mineral acids precipitate the color the same as with the imported brown.

"The dried material grinds well in oil; the color, however, is not so good as that of the imported browns, although the color is developed at once by the presence of water. It is thought that the color in oil may be improved simply by not carrying the air-drying to completeness, or by emulsifying with a small amount of water. The sample tested was thoroughly air-dried but the indications are that the substance will carry considerable moisture and still grind well in oil.

(Continued on Page 7)

Meet Our New Sales Engineer

WE want you to know Mr. Wm. J. McGinnis, the new Sales Engineer for the Valley Iron Works Co.

He is a real, honest-to-goodness engineer who knows what he is talking about. That is why he is so well worth knowing.

Mr. McGinnis is a member of the American Society of Mechanical Engineers and has been in the employ of Valley Iron Works Company for five years as the head of our Engineering Dept.

He comes from a long line of paper manufacturers and has devoted his time to engineering problems in a number of mills in the Fox River vicinity before entering our employment.

Mr. McGinnis joins with us in extending holiday greetings to all our friends through this number of *The Beater*.

Water Soluble Brown (Continued from Page 5)

"The liquid obtained by leaching contains finely divided clay in varying amounts in suspension which it is almost impossible to remove completely, but it is probable that this clay would itself act successfully as a filler where the color is applied to paper—its chief use."

An analysis of this water soluble brown organic material from the Wyoming deposits will give a more definite idea of its true character.

	Per Cent
Loss on air-drying	56.85
Moisture in air-dried sample (105° Cent.)	8.85
Total water soluble	48.29
Ash	42.50
Soluble alkaline salts (weighed as chlorides)	4.24

Otherwise stated:	*Per Cent*
Organic water soluble	44.05
Ash	42.50
Organic insoluble	4.50

Alkali metals, mostly sodium.

Analysis of water soluble (ash free)—

	Per Cent
Carbon	56.51
Hydrogen	5.74
Nitrogen	1.81
Oxygen	35.96

Analysis of the color precipitated by adding diluted hydrochloric acid to the solution, the mineral matter should be the following:

	Per Cent
Carbon	61.84
Hydrogen	3.36
Oxygen plus nitrogen	33.30
Ash	1.50

Analysis of the precipitate produced by the addition of barium chloride gave the results below:

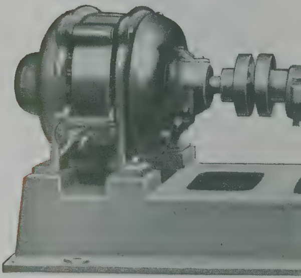
	Per Cent
Carbon	48.50
Hydrogen	3.45
Barium	22.65
Oxygen plus nitrogen	28.10

There is another similar deposit of this lignitic material in the northwestern part of New Mexico. It is on a high plateau near the Navajo Indian Reservation about fifteen miles northwest of Putnam.

Green County, Wisconsin, makes two claims to distinction; the lowest death rate of any county in that state and the highest production of Limburger Cheese. Some say that this combination can't be beat.

Ring in *A* Ha
for Y

Replace
Your Old Pumps



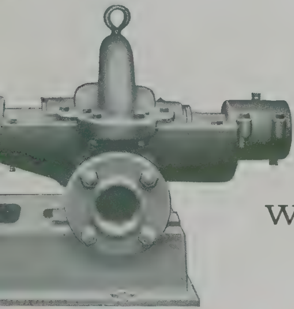
Valley Iron Works Co's Pum

A TREMENDOUS item of expense in paper mills and other similar plants is that of power. Often this power expense may be called pumping expense, particularly because of the tremendous waste often involved in this particular work. A single pump costing around $300 may run up a power expense of $18,000 and more in fifteen years. If this is one of your pumps it will cause you a lot of worry. Yours may not be so bad at wasting. It may be worse. Have you looked into the matter?

We can see but one reasonable excuse for using inefficient pumps and that is in being unconscious of their waste of money in power, or in not being aware of the fact that it can as well be avoided. Valley Iron Works Co.'s Pumps will stop the unnecessary waste, and every pump is guaranteed. If you doubt our claim for the pumps, rely on our guarantee; it is good. We are placing practically all of the pumps in some of the largest pulp mills in Wisconsin, where fifteen to twenty pumps are required for each mill, and it would be unreasonable to suppose that these people would continue to throw out their old pumps and put in ours if they were not finding it profitable to do so.

In many places we have replaced the out-of-date pumps and installed Valley

py New Year
urself



With Valley Iron
Works Company's
Centrifugal Pumps

Save Where Others Waste

Iron Works Co.'s Pumps that are doing the work with one-third of the power originally used. We are replacing some of the best makes of modern pumps, that are comparatively new and claimed to be high-class pumps. We could not replace these pumps if there were not a good reason.

There are some cases where the conditions bar high efficiency. That is, in cases where the speed available is not such as to permit a design that makes high efficiency possible.

We have made this matter of efficiency a life study and will be glad to give you the benefit of our experience in securing the most efficient pumping installations possible under existing conditions.

Don't fail to give as complete data as possible. You have everything to gain and nothing to lose by so doing. If your data is not reasonably correct you need not look for best results in power. We cannot fit conditions unknown to us, and a failure to fit the conditions means loss in efficiency in proportion to the incorrectness of the data. You, therefore, cannot be too particular in giving the data correctly.

See data sheet on inside back cover. Use this form in sending your data for information on a Valley Iron Works Co.'s Pump to fit your requirements.

A Better and More Economical Washer

HUNDREDS of paper manufacturers are saving good money every day by using our economical Horizontal Paper Washers. We can show you how to make this same saving.

This washer was invented to meet the need for a *better* washer. It was designed for the paper man who wants to get more money out of his business by reducing cost of production and bettering the quality of the product.

The capacity of each washer is 1,500 pounds, and about 6 horse power is required for operating. The maintenance is practically nothing, as they run slowly and take such a small amount of power that there is nothing to wear out.

Mr. John F. King, of the King Paper Co., Kalamazoo, Mich., wrote us about the paper washers we installed for that company:

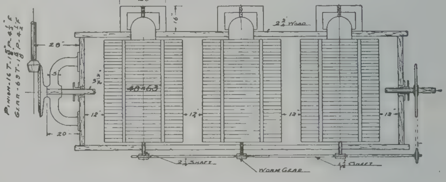
"I want to say that they wash the old papers in first-class shape. The capacity of each washer is 1,500 lbs. We can get a very nice color on our stock in from two to three hours' washing.

"We have a 30-horse power motor operating four washers. They average about 6 horse power each.

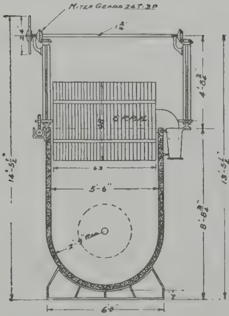
"The maintenance on these washers is practically nothing, as they run so slow and take such a small amount of power there is nothing to wear out."

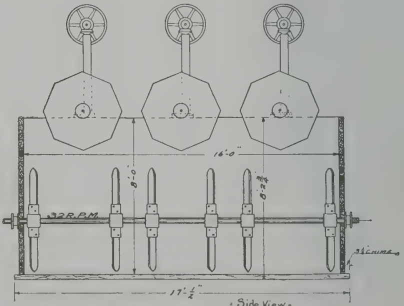
Write us for prices. We will give you the name of a plant near you where you can see our washer at work. Write today.

- Top View -



- End View -





- Side View -

A Decade of Beating

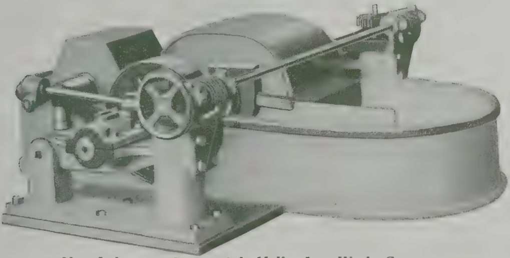
TEN years has brought about many changes and improvements in the beater rooms. The process still imitates the old-fashioned task of working up the pulp by pounding, but it is a long stride away from the old way today.

In the last ten years the improvements most noticeable have been: The use of larger beaters built of different material, larger chests, increased driving speed, a saving of usable materials from the back water, and the addition of valuable laboratory work in connection with beater room practice.

The laboratory is bringing more exact methods to the practice of coloring and sizing. The beater man now is often found working after a formula that the chemist or specialist has furnished, so that matching of color, strength and finish is done according to samples previously made in the laboratory.

A more definite control of the results from the beater is brought about by the laboratory work. The measuring and recording of variations in viscosity gives a definite control of the mass in the beater as to thickness of material and quality of stock.

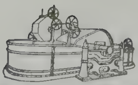
This laboratory work, then, can be brought directly into the operation of the large beaters so that precise directions may be given for the exact manner of beating for any given order. The results of laboratory tests are being used today in application to the matching of samples in all classes of stocks.



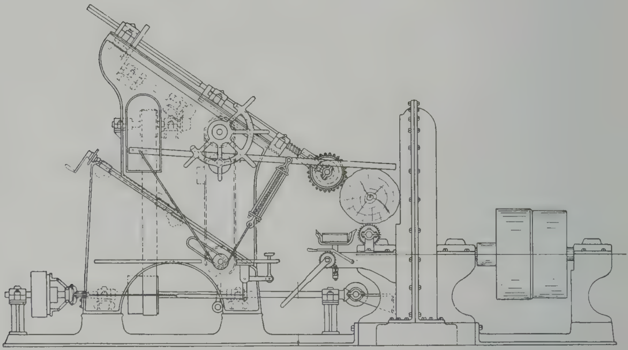
New Laboratory Beater of the Valley Iron Works Company

There is still much room for progress in laboratory tests for control of quality by various methods of sizing. This is not a problem that has been solved as yet. There is what is called the "flotation" test, and the test for "electric conductivity," but they may not be called entirely complete as yet.

So, while each decade has brought its own progress in all operations from the work in the woods to the turning out of the most beautifully finishnd sheet, there is always another step forward for us all to take in the next year or years.



The "Ideal" Barker



—Ideal from Every Standpoint of Efficiency, Durability and Economy

THE "Ideal" is a *final-type* barker—a composite model embracing every desirable feature you have had in mind—and possibly possessing other good features you never even thought of.

Yes, sir, if you want a barking machine that is absolutely *there*—the "Ideal" is it. It stands every test, it meets every condition, it defies competition.

Our claims for this barker are not based on theory or guesswork, but on careful records of results in many of the biggest pulp and paper factories where these machines are in daily use. These carefully checked tests, prove, beyond the shadow of a doubt, that the "Ideal" will meet every requirement that makes for efficient barking.

It barks better—

It wastes less wood—

It works more economically—

It requires but one man to operate it—

It saves labor costs from the very minute you put it in operation.

The starting and stopping of the cross conveyor or the feeding of the wood to the barker, is entirely an automatic process, controlled by a hand wheel.

The spur wheels which operate the wood can be stopped at any point.

Write for specifications on guaranteed capacities of our barkers.

Here's to Uncle Sam and 1920

UNCLE Sam will have peace here, before long, even if he has to fight for it. He is pretty good natured, still, because he knows that he has the power to wield the big stick when he has to do it.

That big stick is the public opinion of 110,000,000 Americans who are not taking their opinions from mine owners nor coal miners—from steel mill operators nor steel workers.

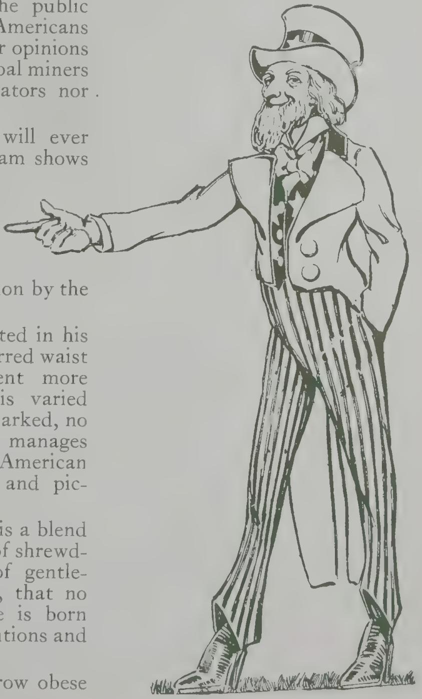
No selfish class rule will ever succeed where Uncle Sam shows his shrewd but kindly smiles.

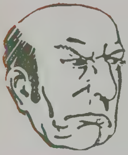
Uncle Sam, symbol of the United States, probably receives little critical consideration by the average American.

He is taken for granted in his striped trousers and starred waist coat; but, as a recent more critical observer of his varied representations has remarked, no foreign cartoonist ever manages to get his real self as American cartoonists have seen and pictured it.

The real Uncle Sam, is a blend of sadness and humor, of shrewdness and sympathy, of gentleness and implacability, that no aliens understand. He is born of our soil, of our institutions and of our early struggles.

He has scorned to grow obese with our prosperity. He is democratic to the core, but he is also disillusioned. There is no artless streak in his complicated mental and moral makeup. He is well able to take care of America.





Smile!
Bless You!
Smile!

The Model Husband—He shows just as much interest in his wife's headache as he does in his own toothache.

Yes, Mawrus, lots of people would be ideally married if they weren't married to each other.

Uncle Dan has just come back after a visit to the big city. He seems to have had quite a lively time keeping out of the way of the automobiles. His opinion is that if some of those fellows were driving machines over the great American Desert they would run into the water hydrants.

Some wives say that some husbands act like motors; as soon as they stop sparking they begin to knock.

Uncle Jed says that these new skirts make the girls look shorter. Aunt Min sniffs a little and says she's noticed that they make the men look longer.

Yes, Danny, the man without money has a lot of advice given him, and the man with money has a lot of poor relations. There really is little difference or advantage on the side of either.

Professor to the class—"Now, you must give me your individual attention. It is absolutely impossible for you to form a true idea of this hideous, prehistoric animal that I am describing, unless you keep your attention fixed upon me."

Dick—"They tell us that onions will build one up physically."

Nell—"Yes, but think how they pull one down socially."

God gave us our relatives but, thank God, we can pick our friends.

First City Gardener—"How did you come out with your garden last season?"

Second C. G.—"Fine! Just fine! 12 dollars will more than cover the loss all told. Compared with the year before, I did remarkably well."

She—"Henry, if we were both free again, would you choose me to be your little wife?"

He—"Now, what do you want to start a quarrel for just as everything's going pleasantly?"

"Say, that horse you sold me is blind and you never said a word to me about it."

"Well, the man who sold him to me didn't tell me either and I thought perhaps he didn't want it known."

Mr. Judd—"I passed your house yesterday."

Miss Sharpe—"Oh thank you ever so much."

The little dog was running around the engine,
The engine it was running through the fog,
There came an awful yelp, but the engine couldn't help,
For the engine couldn't run around the dog.

LAST BUT NOT LEAST

Send Us This Data Sheet TODAY

Note:—If the second or third question can not be answered, where pumps are now doing the work required, place a vacuum gauge on the suction pipe close to the pump and a pressure gauge on the discharge close to the pump and give us the readings, together with the distance between the level of the gauges; these with correct answers to questions 4 and 5. We can then arrive at the data sufficiently close. Care must be taken to use gauges that are reliable—then if more water is desired we can easily make provision to get it. If the installation is a new one, the capacity must be stated and the actual head given; then the size of the pipes can be designed to fit the capacity economically.

1. Number of pumps of each capacity required..............................
2. Capacity of each size in gallons per minute, if known.............

   ....

3. Total head, including suction lift and discharge pressure, and total pipe losses in both suction and discharge pipe lines

   ....

4. Length and size of suction pipe, number and kind of elbows and all valves used in the suction line, and the actual suction lift..
5. Length and size of discharge pipe, with number and type of all elbows and valves used, also actual discharge head............

   ....

6. Type of pump, whether horizontal or vertical..........................
7. Nature of liquid to be pumped; cold or hot; clear or gritty; fresh or salt; acid or alkaline; pulp stock or other solids.........

   ....

8. If pulp stock, state percentage of density, and whether it has been screened or may contain knots or slivers or other materials..

   ....

9. If acids, state kind and specific gravity....................................
10. If belt driven, give kind of power, and diameter and speed of drive pulley..
11. If motor driven, state current used; if direct, give voltage; if alternating, give voltage, phase and number of cycles

    ....

12. State kind of service, whether continuous or intermittent

    ....

    ....

What is Your Problem?

Our thirty-five years of actual, practical experience and our modern engineering department is at your service to help locate and overcome all difficulties connected with pulp or paper making machinery. Put your problems up to us. Consultation is free of charge and without obligation on your part.

We design pulp and paper making machinery to meet any requirements; supply standard machines in any quantity, and are builders of—

- **Vesuvius Oxidizing Sulphur Burners**
- **Beating, Washing and Bleaching Engines**
- **Barkers and Barker Attachments**
- **Chippers—Re-Chippers—Chip Screens**
- **Knot Screens (Revolving)**
- **Diaphragm Screens — Felt Washers**
- **Below Pits**
- **Deckers (Single and Double)**
- **Stuff Chests (Vertical and Horizontal)**
- **Shredders and Special Washers for Old Paper Stock**
- **Wet Machines and Patent Roll Skinners**
- **Bronze, Semi-Steel, Lead and Iron Castings**
- **Valley Iron Works Co. Centrifugal Pumps**
- **Acid Tanks**

VALLEY IRON WORKS CO.

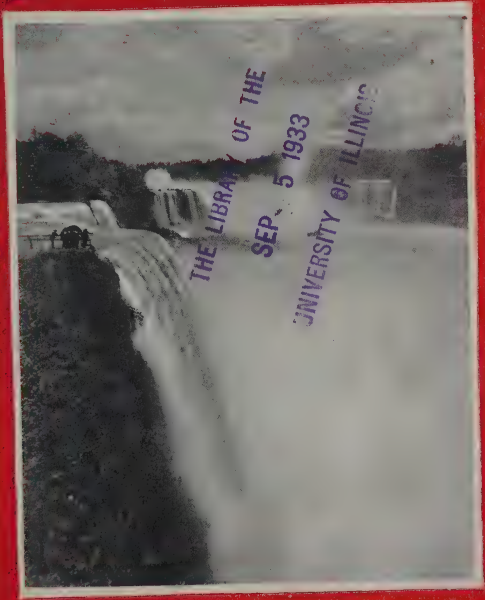
APPLETON, WIS.

Produced by The Cramer-Krasselt Co.

338.05
BEA
Comm F.R

JULY, 1920

The BEATER



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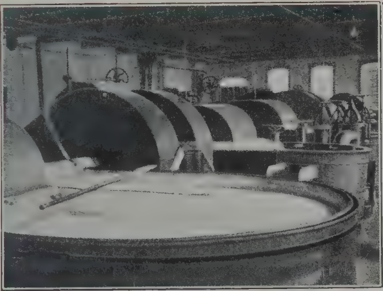
Meet Our New Niagara Beater

Pages 4 to 9

"Come Right Along With
me to Page 4 and Meet
Our New Niagara Beater"



The
BEATER

A Publication for
Paper and Pulp
Manufacturers

PUBLISHED BY
Valley Iron Works Co.
Appleton, Wis., U. S. A.

Volume VII JULY, 1920 Number 1

"Shure, an' Fathe is a Wonderful Thing"

WE all exercise an amazing amount of Trust or Faith every day of our lives, in our business dealings and general life.

When we deposit our money in the bank, we don't *know* that we can ever get it out again, we trust the bank.

Likewise, we have faith in our doctor, our barber, our cook and dozens of other people to whom we entrust our life, health, or happiness every day of our lives.

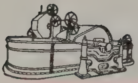
Our entire business system reposes on a basis of Faith. There are some people and Business Houses that we depend on, feeling assured that our Faith is justified. They have proven their reliability so regularly that we have implicit Faith in them.

The condition that is being constantly striven for by every worthy Business House, is to be trusted implicitly by their customers.

It sure is a "gr-r-r-and and glor-ious feelin' " when we hear of one of our customers responding to an inquiry about us in this manner:

"The Valley Iron People?

"Sure, they're O. K. You can *always rely on them.*"



A Beater that Does the Work of Two or Three Ordinary Beaters

With a smaller initial investment, lessened power costs, lower labor costs, and a uniform quality of beating.

YOUR profits and the quality of your output, are very materially influenced by the beater used. A good beater means good paper, and a better profit. A *better* beater means a much better product with far greater profits at a *lower manufacturing cost.*

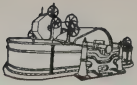
Here's "proof of the pudding," a fact and figure explanation of the Niagara beater's superiority.

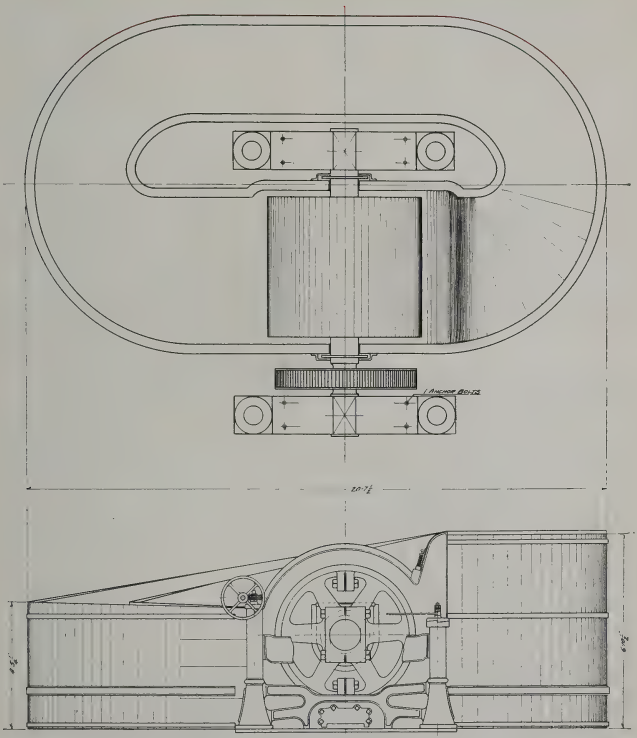
In beating stock there is a definite amount of power per ton necessary to hydrate it and prepare it for paper making use. To do this work efficiently, the power must be effectively transmitted to the stock. An efficient beater, therefore, is one that will do this work in the shortest possible time, with the least expenditure of total power. The biggest factor in accomplishing this, is to get as rapid a circulation as possible, for it is perfectly evident that if stock comes under the roll only ten times an hour, it will beat off much slower than if it comes under the roll one hundred times an hour.

With the idea of making this circulating speed as high as possible, the following important differences in design over the ordinary flat bottom beater have been introduced, with the result that not only has the circulating speed been greatly increased but other important advantages are found which are described in the following paragraphs:

(1)—A More Advantageous Position of the Lighter Bar Stand

The lighter bar stand is placed in the center, therefore a shorter shaft is required than in the usual type. This makes for a much more rigid construction, practically eliminating the danger of springing a shaft. This feature is especially valuable when feeding in laps of frozen or dryer pulp. The main feature of this construction is that it is possible to raise the backfall and build up a higher head of stock, as the journal does not go through the back channel, thereby acting as a dam and retarding the flow. Another advantage of this design is, that a tub with a capacity of two thousand pounds, air dry, occupies much less floor space than a flat bottomed beater. This is a very important item in reducing construction costs. Two beaters, one a right hand drive and one a left hand can be mounted almost back to back because of this construction, with a great additional saving in floor space.

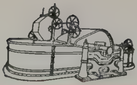




(2)—The Position and Design of the Doctors

As seen from the drawing, the blade is placed so there is very little clearance between it and the fly bars. It is held there with springs. If a lap of pulp causes the roll to jump, the doctor jumps with the roll, but returns to its original position because of the tension exerted by the springs.

The stock leaving the roll at its peripheral speed is almost thrown completely through the constricted openings between the doctor and the top of the back fall, practically none



following the roll and causing the effect known as churning. In any ordinary beater the stock carries over to a large extent, even though a doctor is used. The reason for this is that the usual position for a doctor is up on the hood, where it cannot possibly do much good as it must be hung far enough from the fly bars to clear them when the roll jumps, and so ordinarily there is a great deal of clearance.

The construction mentioned above between the doctor and the top of the backfall introduces the same principle underlying a centrifugal pump where the velocity head is changed to a static head in the pump casing.

(3)—The Backfall Insures Uniformity of Pulp, and Materially Cuts Power and Labor Costs

The double plane curve construction of the backfall also assists very materially in the rapid circulation of the stock, as it offers very little resistance to the flow. Because of this, and because there is a difference in head between the front and the back of the tub of about twenty-four inches, the stock flows very rapidly down the narrow outer channel to the roll.

There are no dead spots, which is most plainly seen where color is added to the beater. In two to three minutes the color is uniform throughout the pulp mass. This is particularly helpful in matching new shades, and is proof of uniform beating treatment.

Another very important point due to this difference in head, is that this beater dumps clean, with absolutely no raking down, in about 3½ minutes. This very materially decreases the time that the beater is idle and makes it much easier for the men.

Here is Proof of What These Changes Have Accomplished

On an all sulphite furnish of Mitscherlich pulp, the charge being 2180 pounds air dry at 8.4 per cent consistency, it was beaten in 1 hour, against 3½ to 4 hours in the usual beater. The rate of travel of the stock was sixty times an hour. With the same furnish at 7.0 per cent consistency, the rate of travel was very close to ninety-six feet per minute, and the stock came under the roll about one hundred times an hour. The power consumed was 150 H. P. hours, compared to 200 H. P. hours in the older type, a saving of 25 per cent in power and doing the work in one-quarter of the time.

On a book furnish where the work is mostly breaking up the pulp and broke, the stock being Jordanned quite severely, the usual time in this beater for filling, beating and dumping is not more than twenty minutes, compared to sixty minutes in the old type. The consistency is about 8½ air dry, and the rate of travel about eighty feet per minute. The power required in the new beater is about 20-25 H. P. hours compared to 50 H. P. hours in the old, a 50 per cent saving and doing the work in one-third of the time.

In beating a charge of No. 1 new overall cuttings, 1,600 lbs. air dry at a consistency of 6.5 per cent, the time required was two hours and fifty minutes, compared to 8-9½ hours in the old type of beater, at an estimated saving in power of from 15-20 per cent, and one-third of the time. The power saving is estimated because the older type beaters were driven from a line shaft run by water wheels, and the exact power used is not known.

To sum up, the advantages of the new Niagara beater are:

1—**Shortened Beating Time**—One beater does the work of two and sometimes of three beaters.

2—**Lessened Power Costs**—The power is more effectively transmitted to the stock with a saving of from 15 to 50 per cent.

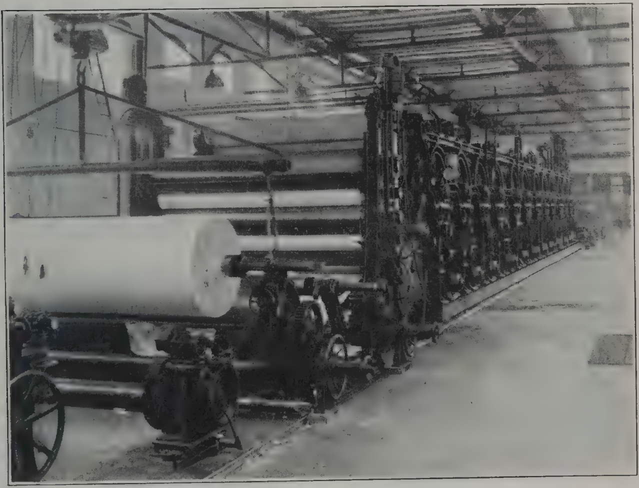
3—**Saving in Floor Space**—A congested beater room can be relieved, or additional equipment installed without enlarging the beater room.

4—**Smaller Initial Investment**—The housing of the smaller installation lowers the construction costs, and fewer machines will do the same work, the saving in investment for both beaters, and power equipment necessary to drive them, is very large.

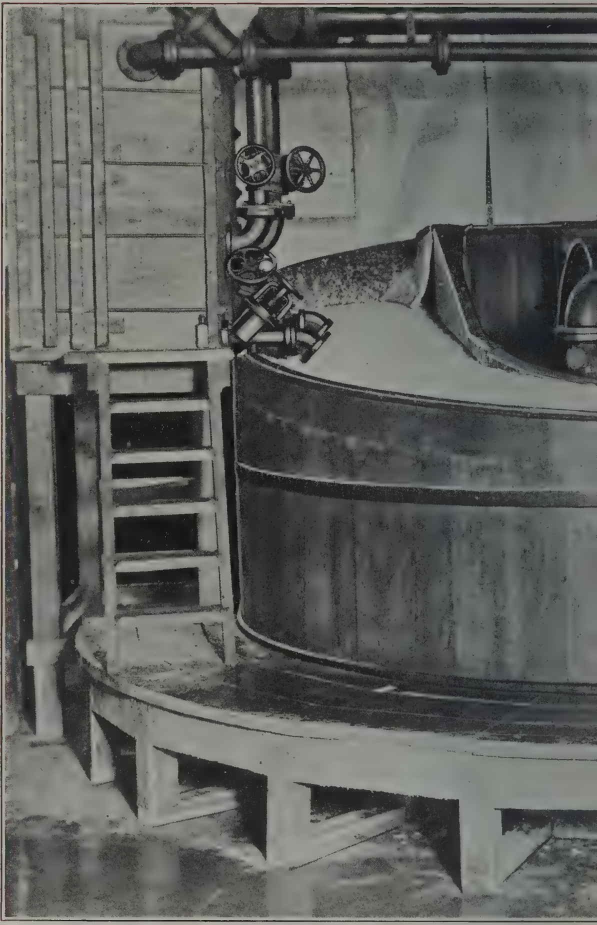
5—**Lower Labor Costs**—Because of the fewer machines, fewer men are needed.

6—**Uniform Quality of Beating**—The stock is thoroughly mixed, thereby eliminating all dead spots.

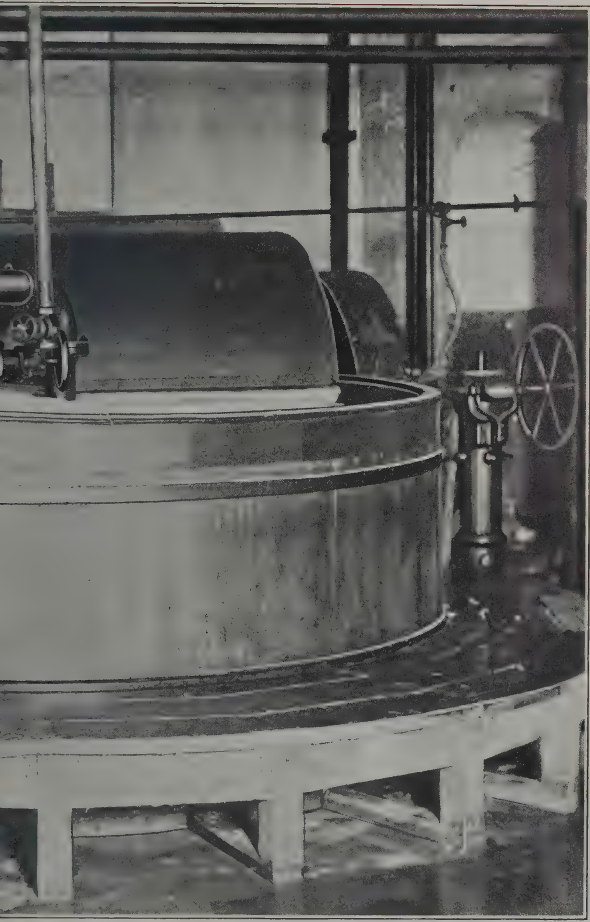
We are prepared to answer all inquiries and supply data in regard to our Niagara Beater. We expect every paper mill in the country to be keenly interested in this new beater proposition. We want to hear from *you.*



132-*inch paper machine which* **1** "*Niagara*" *is furnishing at the Kimberly Mill of the Kimberly-Clark Co. This Beater is running only two-thirds of the time while beating* 50 *tons of stock per day.*



ATER AT WORK



"The Best Thing in the Way of a Beater Roll on the Market Today"

That is what a large number of practical paper mill superintendents have said, after inspecting our new Bandless Roll.

WHILE a number of types of bandless rolls have been placed upon the market within the last few years, none of them have as yet proven themselves of distinct advantage over the old type of banded roll. During the last few months we have developed a bandless roll, which we believe to be the best on the market today. This new bandless roll is now being placed on sale.

There are four principal features about this roll, that make it particularly interesting, namely: its *accessibility*, *durability*, *safety*, and *time-saving qualities*.

1. **Accessibility**—You can readily see the extremely easy manner in which the roll can be got at to remove the bars, by referring to Figure 3. The ring can be easily taken off by simply loosening the machine screws. Better still, it is only necessary to remove one ring, as against removing both bands in the old type, of roll which usually allowed all of the bars to fall out of place. One, ten, or any and all of the bars in the roll can be removed with one ring off and one in place.

2. **Durability**—The heads of this roll are milled to receive the bars and are turned to fit the side rings which were spoken of in the above paragraph. The rings in turn are drilled for special countersunk machine screws. They are machined all over to fit into slots in the bars, which are milled in a jig, thus insuring uniformity. The result is a perfect fit when the roll is assembled. In fact, the fit is so true that the bars will not become loose at any time.

The points of support are so designed that the bar is reinforced at three or four places, determined by the face and number of heads in the roll.

3. **Safety**—Because of the above mentioned facts, the factor of safety in the roll is very great, as the bands are prevented from breaking. This

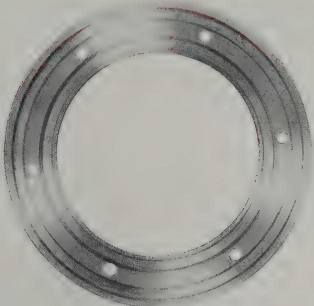


Fig. One

The method of holding the bars in the one roll. The casting is made of cast steel and is applied to both ends of the roll. It is a driven fit and is further held in place by the aid of brass headed countersunk machine screws.

does away with the danger of pitching the fly bars out of the roll.

4. Time Saving—This roll is filled in the usual manner, with steel fly bars and oak strips cut to fit the space between the bars, but due to

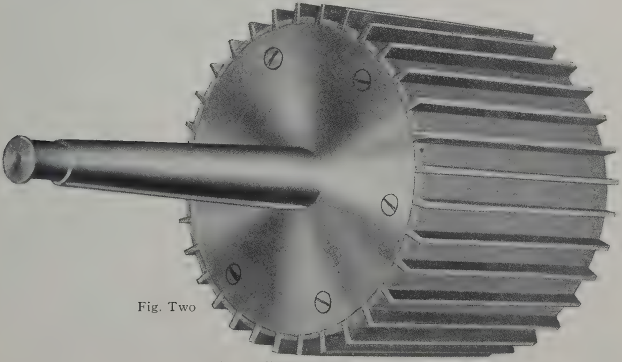


Fig. Two

The roll with ring in place.

the easy and accessible manner in which the roll may be taken out, the time of filling is reduced over fifty per cent.

This bandless roll has been proven to be absolutely practicable. It has been inspected and criticized thoroughly by a large number of practical paper mill superintendents, who term it the best thing in the way of a beater roll on the market today. Although the roll has only recently been placed upon the market, a large number have already been sold.

This proposition merits your very careful investigation. We will gladly send you all available data we have in connection with this new, efficient, bandless roll. Just drop us a line.

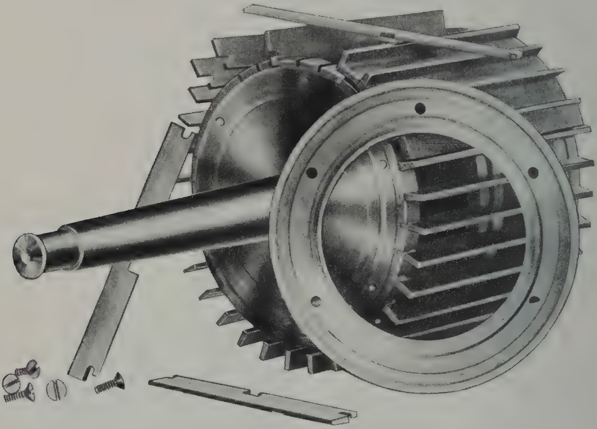


Fig. Three

Confidence

There was recently haled into court a little Irishman to whom it was a new experience. But he was unabashed.

"Prisoner at the bar," called out the clerk, "do you wish to challenge any of the jury?"

"Well," he finally replied, "O'im not exactly in trainin', but Oi think Oi could go a round or two with that fat guy in the corner."

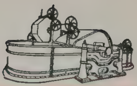
Analogous

You say you were held up by a footpad with a revolver this morning. At what time?

"Five minutes to one."

"How can you fix the time so precisely?"

"Because I could see the church clock, and I noticed the hands were in the same position as mine."—*London Tit-Bits.*



Need of Forests for Wood Pulp

Extracts from an artcile in American Forestry, by E. T. Meredith, Secretary of Agriculture.

"THE United States is today facing the most critical pulp and paper situation in its history. Of this the newsprint situation is the most serious. Present demands, abnormal though they may seem, are merely an incident in the rapidly growing normal demand for newsprint paper.

"The probable life of the industry in New York, New Hampshire, and even in Massachusetts, where the great bulk of our Eastern Pulp Wood still remains, is alarmingly short. We have, on the other hand, large quantities of suitable newsprint woods in the Pacific Northwest and in Alaska. The annual growth of timber in the National Forests of Southeastern Alaska, alone would supply one-half of our present American newsprint requirements. *Here the industry is undeveloped.*

"A far greater degree of independence in newsprint manufacture can be accomplished by two measures—the development of the industry in the Pacific Northwest and in Alaska, and the large scale growing of timber in New England and the Lake States. Both of these measures would be greatly stimulated by the passage of the Poindexter Pulp Survey Bill now pending in the Senate. A pulpwood survey would secure the facts on which a sound development of the industry in the Northwest and in Alaska can be based, and it would also afford a basis for the production of pulp timber in the Lake States, and in the Northeast.

"The American Pulp and Paper Association has urged the purchase by the government of large areas suitable for the growing of pulpwoods. The government has made a beginning in this direction during the past decade.

"We already have some technical knowledge of the best methods for growing the pulp timbers in the Northwest and the Lake States, enough to begin intelligently. But a great deal of investigative work remains to be done. Forest Experiment Stations alone will, in any reasonable time, furnish the required knowledge of the best methods of cutting, planting, production, and the various other steps in such intensive timber growing.

"Along a number of other lines, it has also been possible to make a beginning, as for example through co-operation, on the cost of and remedies for the molding and decay of pulp. The work under way should be very materially expanded, and there is a wide range of other subjects on which intensive investigations would benefit both the public and the pulp and paper industry."

* *

Philosophy of the Under-Dog

The under-dog lay on its back. It had been pretty well battered and chewed by the Mastiffs of Fate.

On its back it could see the stars, so it hadn't quit, although its come-back was feeble.

"It's the first open-air view of existence I've ever had," it muttered. "I can see better and farther than the giants on top of me. Besides, I've got the tails of three of the bullies in my mouth. It seems that I've got just as good a hold on Fate as it has got on me.

"Maybe Success and Failure are one if one studies the art of holding on and looking upward."

And the under-dog grinned at the blazing eyes of the conquering Mastiffs—grinned out of its eyes, which said, "Well, who *has* won anyway?"

Mr. A. I. Peterson

VICE-president of The Valley Iron Works Company until the time of his death, April 20th, 1920. Born July 19, 1860. His loss is deeply felt by his associates to whose interests he was always faithful.

* *

Still Room at the Top

The two vets shook hands—it was their first meeting since their discharge—fell to talking about St. Nazaire, and then asked each other what had become of the members of the old guard.

"And oh, yes—there's Muggs—Muggs that began to read the 'Life of Napoleon' as soon as they made him a corporal. What's become of him?" inquired the first.

"Oh," replied the other, "he's working in a garage—pumped ten gallons of gas into my car the other day. Tells me he's reading the 'Life of Rockefeller."

—*Home Sector.*

Coming!

THE feature of the next issue of *The Beater* will be our new paper machine. This article will merit your careful reading. Watch for it.

* *

Boost

Boost and the world is with you.
Knock and you're ruined, that's sure.
People get sick of those who kick,
For kicking is hard to endure.

Boost when you're certain of winning.
Boost when you're unable to score.
If you happen to fail, don't sit there and wail;
But get out and boost some more.

Boost for human advancement.
Boost for your own home land.
If we wish to succeed and maintain our lead.
We have to boost "to beat the band."

Boost for your dear old state.
Boost for your country and town.
A community pride cannot be denied,
Unless boosting is always kept down.

Boost 'till they all get the habit
Of boosting with all their might.
Keep boosting and boosting—forever boosting
But keep boosting for only the right.

—*Pfieffer.*

* *

Our Western Sales Agents

Pacific Coast Supply Company
Portland, Oregon

The Valley Iron Works Company
Appleton, Wis.

Last But Not Least

SEND US THIS DATA SHEET TODAY

Note:—If the second or third question can not be answered, where pumps are now doing the work required, place a vacuum gauge on the suction pipe close to the pump and a pressure gauge on the discharge close to the pump and give us the readings, together with the distance between the level of the gauges; these with correct answers to questions 4 and 5. We can then arrive at the data sufficiently close. Care must be taken to use gauges that are reliable—then if more water is desired we can easily make provision to get it. If the installation is a new one, the capacity must be stated and the actual head given; then the size of the pipes can be designed to fit the capacity economically.

1. Number of pumps of each capacity required..............................

2. Capacity of each size in gallons per minute, if known..............

   ....

3. Total head, including suction lift and discharge pressure, and total pipe losses in both suction and discharge pipe lines

   ....

4. Length and size of suction pipe, number and kind of elbows and all valves used in the suction line, and the actual suction lift..

5. Length and size of discharge pipe, with number and type of all elbows and valves used, also actual discharge head.............

   ....

6. Type of pump, whether horizontal or vertical............................

7. Nature of liquid to be pumped; cold or hot; clear or gritty; fresh or salt; acid or alkaline; pulp stock or other solids..........

   ....

8. If pulp stock, state percentage of density, and whether it has been screened or may contain knots or slivers or other materials..

   ....

9. If acids, state kind and specific gravity.......................................

10. If belt driven, give kind of power, and diameter and speed of drive pulley...

11. If motor driven, state current used; if direct, give voltage; if alternating, give voltage, phase and number of cycles

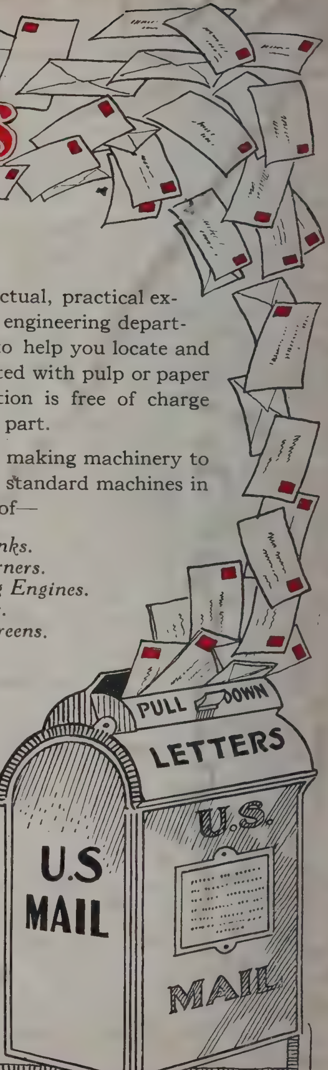
    ....

12. State kind of service, whether continuous or intermittent

    ....

    ....

Put Your Problems Up To Us



OUR thirty-five years of actual, practical experience and our modern engineering department is at your service to help you locate and overcome all difficulties connected with pulp or paper making machinery. Consultation is free of charge and without obligation on your part.

We design pulp and paper making machinery to meet any requirements; supply standard machines in any quantity, and are builders of—

Cylinder Machines. Acid Tanks.
Vesuvius Oxidizing Sulphur Burners.
Beating, Washing and Bleaching Engines.
Barkers and Barker Attachments.
Chippers, Re-Chippers, Chip Screens.
Knot Screens (Revolving).
Diaphragm Screens.
Felt Washers. Blow Pits.
Fourdineir and Board Machines.
Deckers (Single and Double).
Stuff Chests (Vertical and Horizontal).
Shredders and Special Washers for Old Paper Stock.
Wet Machines and Patent Roll Skinners.
Bronze, Semi-Steel, Lead and Iron Castings.
Valley Iron Works Co.'s Centrifugal Pumps.

Valley Iron Works Co.
Appleton, Wisconsin

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The BEATER

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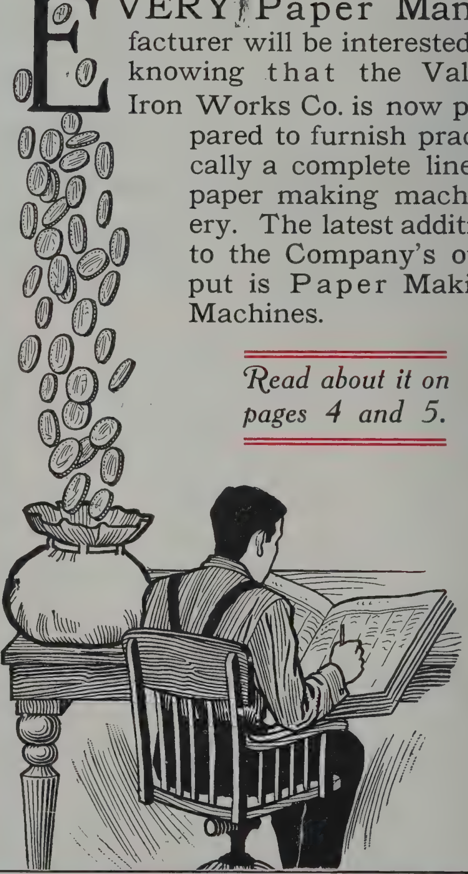
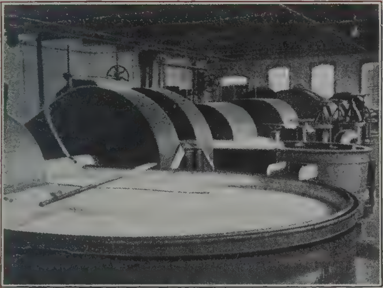
The Mark of
Superior
Pulp and Paper Making
Machinery

AUGUST-SEPTEMBER, 1920

EVERY Paper Manufacturer will be interested in knowing that the Valley Iron Works Co. is now prepared to furnish practically a complete line of paper making machinery. The latest addition to the Company's output is Paper Making Machines.

Read about it on pages 4 and 5.





The
BEATER

A Publication for
Paper and Pulp
Manufacturers

PUBLISHED BY
Valley Iron Works Co.
Appleton, Wis., U. S. A.

Volume VII AUG.-SEPT., 1920 Number 2

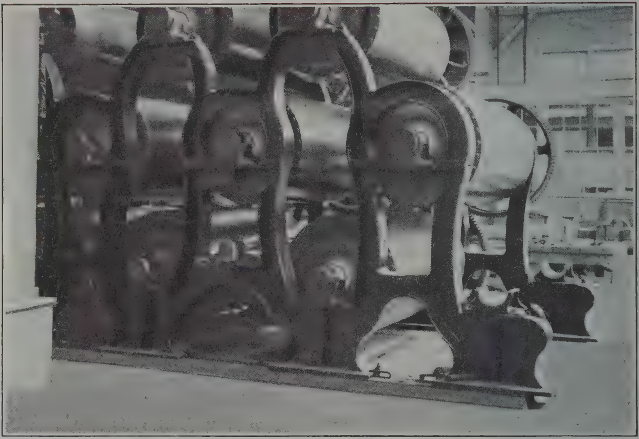
Raising Railroad Rates

THE recent increase in freight rates granted by the Interstate Commerce Commission is of vital concern to the pulp and paper industry. While the advance in rates will place a tremendous burden upon many industries already laboring under high cost of production, it appears nevertheless a just and necessary measure. Railroad facilities, both passenger and freight, should improve rapidly as a result of such increases and we may look for a return to some semblance of normal traffic conditions and thus the industrial world as a whole will benefit.

The dealer or the consumer must eventually pay the increased cost of shipping on the finished product and the manufacturer must face the extra freight expense of securing fuel and raw materials. When manufacturers have carefully studied the revised rates and figured out their proportion toward the cost of producing paper it is inevitable that a certain general upward revision in costs will go into effect.

Dodge, president of the International Paper Company, estimates that the higher freight rates will increase the cost of manufacturing news print paper by three dollars a ton. This is not surprising when it is recalled that approximately four tons of raw materials are required to make one ton of paper. Naturally the cost of manufacturing other grades will be increased in proportion.

If the efficiency of the railroads is increased because of the increased revenue and the movement of traffic is speeded up, the industries of the country will benefit rather than lose by the higher rates. It is up to the railroads to make good, but manufacturers can do their share by speeding up the loading and dispatch of freight cars and by increasing the volume of product shipped in each car. Such co-operation will go far toward relieving congestion.



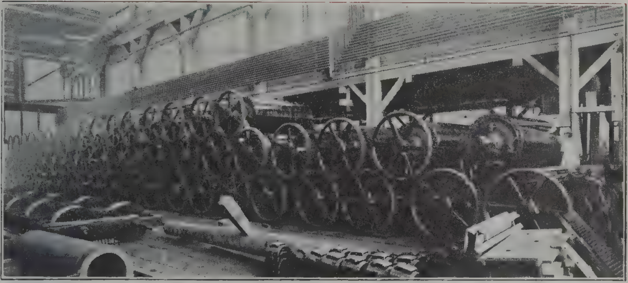
View of Frame Section

Why We Build Paper Machines

CONTINUAL urging upon the part of paper manufacturers who have found such a large measure of satisfaction in the use of the Valley Iron Works regular line of products has prompted us to enlarge our plant to accommodate the manufacture of paper machines. This popular suggestion appealed to us strongly, because the paper machine was practically the only important item lacking in the Valley Iron line to provide complete modern equipment for paper mills required for the manufacture of all kinds of paper.

It is significant, in this connection, that paper manufacturers who have adopted the special equipment for which the Valley Iron Works Co. has become so favorably known and which has given manufacturers such universal satisfaction should prefer to secure their other equipment from the same source.

This latest product of the Valley Iron Works Co., therefore, is the result of a popular demand, rather than anything unusual or extraordinary in design, principle or construction. This paper machine offers nothing sensa-

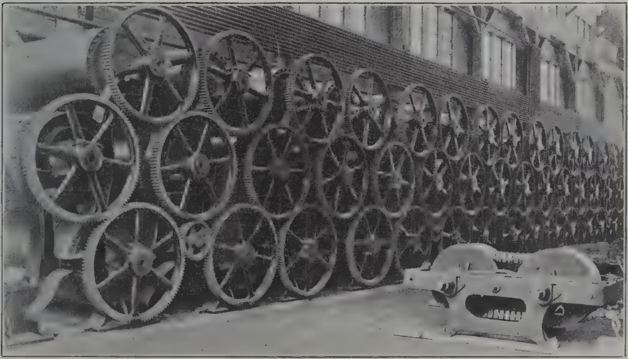


Paper Machine Under Construction

tionally new, but with it goes that same assurance of sturdy construction and uninterrupted performance that has characterized all equipment produced by the Valley Iron Works Co.

As will be seen from the illustrations herewith, our first machines are of the cylinder type, 80-inch trim size. They are 220 feet long over all, having five

(Continued on page 14)



Paper Machine Erected

Distinctive Advantages of Niagara Beater

SUPPLEMENTING the technical article regarding the Niagara Beater which appeared in the July issue of *The Beater*, the following general information we believe will be of interest:

It is a conceded fact that within the last thirty or forty years few steps forward in raising the efficiency of beaters have been made. The Holland type engine of today is but little different than the one of fifty years ago. The general design is the same and the stock circulates in the same slow manner.

The "Niagara," however, as regards both these points, embodies almost a revolutionary change and is a real step up the ladder of development.

Not only is it equipped with the latest type of bandless roll, but it differs in design from the lengthy, broad, shallow, type of beater, in that it is very compact and deep. It is 4½ feet high at the charging end and 7 feet high at the back.

Although occupying the floor space of 20 feet in length by 14½ feet in width, or the space of an ordinary one-thousand-pound beater, it is capable of taking in over two thousand pounds of dry stock and circulating it when at a consistency of 7 to 8½ per cent, at the rate of 95 feet per minute. This is six times as fast as the ordinary beater, and means, therefore, that one Niagara is capable of doing the work of three Holland type engines, thereby effecting a great saving in:

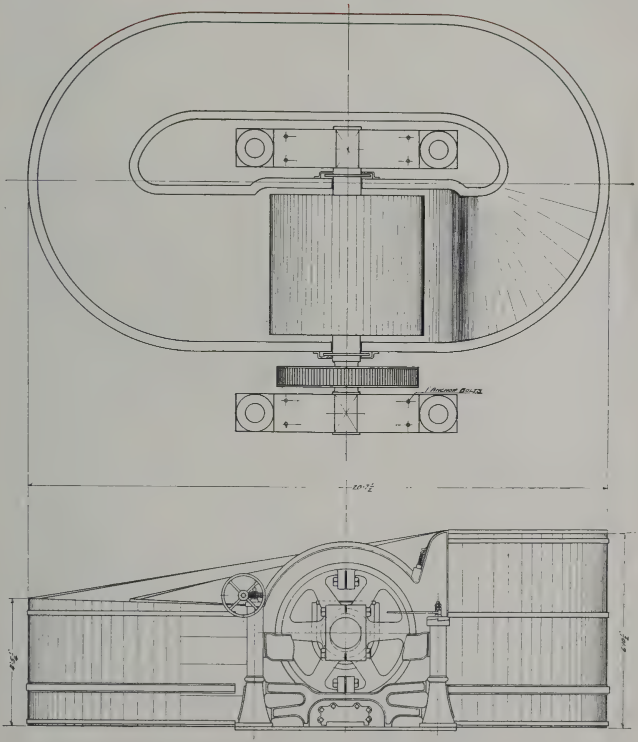
Beating time.
Floor space.
Installation cost.
Motors.
Power.
Belting.
Labor.

The first "Niagara" was put in operation at the Kimberly mill of the Kimberly-Clark Company after thorough tests were made on different grades of stock. The results of these tests were published in the preceding issue of *The Beater*. It was found that "Niagara" had the following capacities per day:

Book stock......	60 tons—	85 average h.p.
Old paper stock	40 tons—	85 average h.p.
Kraft stock......	12 tons—	125 average h.p.
Rags.................	10 tons—	150 average h.p.

The Kimberly-Clark Company were so pleased with the results of the tests, that they immediately ordered 5 "Niagaras" for their Niagara Falls mill.

Another large paper mill of this vicinity, whose stock consists mostly of No. 1 overall cuttings, the most difficult kind of stock to beat, after thoroughly testing the "Niagara," ordered five. They are replacing sixteen of their Holland type engines with them and find that by so doing, will save themselves over six hundred horse power yearly. With power selling at the rate of eighty dollars per horse power, this means a saving of forty-eight thousand dollars per year. Incidentally they also saved themselves seventy-five thousand dollars which they had planned to spend in connection with the erection of a new building for additional beaters. This saving was primarily due to the small floor space required by the "Niagaras." Besides these firms such concerns as the Marathon Paper Mills Co., Menasha Printing & Carton Co., Thilmany Pulp & Paper Co., Pride Pulp & Paper Co., Neenah Paper Co., E-Z Opener Bag Co., Sears-Roebuck Co., Dells Paper & Pulp Co., Fox River

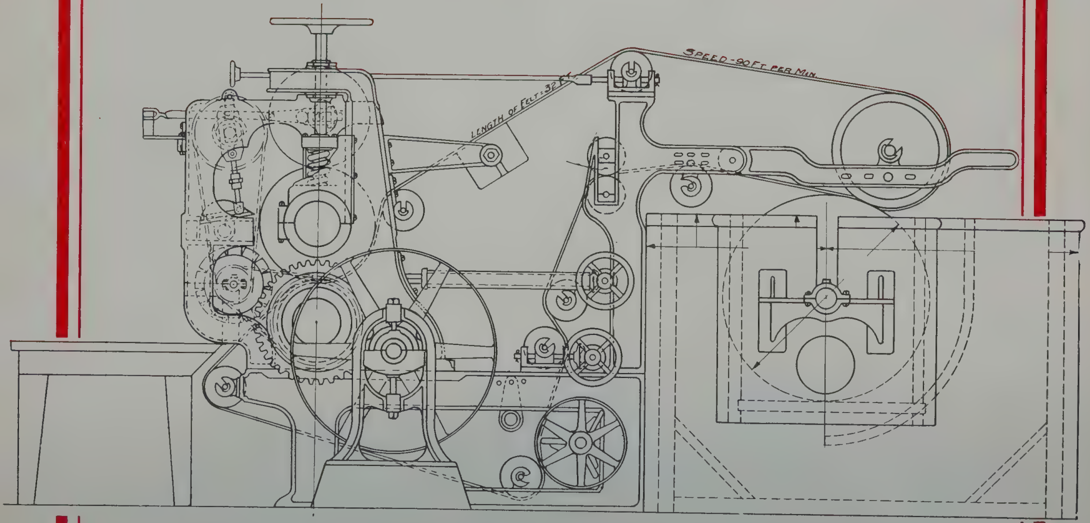


Paper Co., Gilbert Paper Co., and a long line of others equally prominent are going to effect large savings by installing the Niagara Beater.

Although the "Niagara" has only been on the market since the latter part of June, it has attracted the widest interest through the United States, Canada and England.

We believe the "Niagara" is the beater of the present and future and are prepared to answer all inquiries and supply data in regard to it.

We want to hear from you.



Improved Wet Machine. Capacity, 8 tons in Ground Wood. 15 to 18 tons Sulphite. Weight, 16,000 lbs. Made in all Widths. The Feature of Our Wet Machines is their Sturdiness. The Vat is Tongued and Tied Together with Iron Rods, Thereby Insuring no Leaks.

Improved Wet Machines

THESE machines are beyond question the best buy of their kind on the market today and are proving their worth in numerous installations.

They are of extra heavy construction throughout, weighing 6,000 lbs. more than any other wet machine, and our vat is especially well made, being built of 3-inch cypress wood, grooved, tongued and bolted together in a substantial manner. All joints are white leaded and made water tight, so there is no chance of any leakage. The most important feature of our machines—a feature possessed in no other similar machine—is that all bearings are self-aligning.

Our standard make and sizes are 84-inch face with 36-inch diameter cylinder and 56-inch face with 36-inch diameter cylinder. However, we are prepared to build a size to suit your own special requirements and specifications.

VALLEY IRON WORKS CO., Appleton, Wis.

New York State College of Forestry Plans Pulp and Paper Making Course

THE plans for a four-year course in paper and pulp making have so far been completed that a letter is being sent out to prospective students, giving the complete details of the course by semesters and by branches. Prof. C. Earl Libby, in charge of the department, has been amazed by the large number of calls for information on such a course, and anticipates that there will be a large number of freshmen this year who intend entering the paper industry as college trained paper makers. The number is, in fact, so large that the college is accepting for this, as for regular forestry courses, only those who are apparently particulary well fitted for such a course. By the time the registration period ends it is probable that the college will be so flooded with applications that it will not have capacity for all who wish to enter.

Of the new course, Professor Libby says: "In comparing the paper and pulp course with that of the general forestry course, it will be seen that the first year's work in both courses is identically the same. The work of the second year is more specialized —the student continuing his work in chemistry and physics as both these sciences are fundamental to a student who desires to graduate as a pulp and paper engineer. During the third and fourth year the student will take up work directly bearing on the production of pulp and paper although it should be noted that the course outlined for 1920-21 in the junior and senior years differs but slightly from the established forestry course for the reason that there are at present no students in the college who have had the proper preliminary training to allow them to take up this specialized work.

"Students who register in the pulp and paper department in September, 1920, as freshmen or sophomores, will be able to graduate as pulp and paper engineers if the plans of the college mature. To enable them to do this the work of the junior and senior years will be devoted almost exclusively to chemistry, mechanical and electrical engineering, and the more technical phases of pulp and paper manufacture, including the theory and practice of pulp manufacture by all processes, the design and operation of paper making machinery, the bleaching or coloring of stock, paper testing, etc.

"Students who are at present members of the junior and senior classes at this college or students in other colleges who desire to enter here with advanced standing will be required to complete all fundamental courses of the first two years, especially physics, chemistry and mathematics, for which they have no credit, before they will be allowed to take the more advanced courses in pulp and paper chemistry and graduate from the college as pulp and paper engineers. At present, a minimum of two years' work would be required of any student, whatever his standing, as the organization of pulp and paper courses is so incomplete that he could not obtain the necessary amount of training in this field until he had completed the additional courses in pulp and paper technology, which will be given during the year 1921-22."

The curriculum for paper and pulp students, in detail, is as follows:

First Year

Identical with General Forestry Curriculum.

	Hours
General Forestry 1	2
English 1	3
Forest Botany 1	4
Forest Mathematics 1	3
Modern Language	3
Chemistry	4
	19

	Hours
Forest Zoology	4
English 1	3
Forest Botany 1	4
Chemistry 1	4
Modern Language	3
	18

* *

Government Opens Alaska Timber Reserves

THE United States forestry bureau recently took the first steps toward opening Alaska's vast timber reserves to paper and pulp manufacturers in Alaska by advertising in Alaska papers offering for sale all merchantable timber on tracts near here. The sale is being made at the request of the recently formed Alaska Pulp and Paper Company, which proposes to buy the timber and establish a pulp mill as soon as possible. Work on the mill may be under way this summer. The tracts are on the Glass peninsula and at Snettisham, and are near the Speel river, from which power will be taken.

First Ground Wood Mill in Alaska

CONSTRUCTION work has commenced on the first ground wood mill in Alaska. The present construction being a 20-ton unit of a 200-ton mill, designed by Scott & Morgenier, paper and pulp mill architects and engineers, of Oakland, California.

The installment consists of 2 grinders, 1 centrifugal screen, 2 wet machines, etc., and includes one powerful hydraulic press for making bundles 85 per cent dry. Power is hydraulic, Pelton wheels under Hy Head of 1,200 feet.

The water power will cost $1.00 per h. p. per annum. Spruce delivered at mill will cost $3.50 per cord. Freight by steamer, Speel Bay to San Francisco, $8.00 per ton.

There is an abundance of lime rock and 45 per cent pyrites at this location, so that sulphite pulp will probably be made there soon.

* *

Proud of His Town

"I like to see a man proud of the place in which he lives, I like to see a man live so that his place will be proud of him. Be honest, but hate no one; overturn a man's wrong doing in overturning the wrong. Stand with anybody that stands right; stand with him while he is right and part with him when he goes wrong."—*Abraham Lincoln.*

* *

Exception to the Rule

"Now in order to subtract," the teacher explained, "things have always to be of the same denomination. For instance, we could not take three apples from four pears, nor six horses from nine dogs."

"Teacher!" shouted a small boy, "you can take four quarts of milk from three cows."—*Woodworkers' Record.*

* *

What Kind.

A young fellow who was off on a jaunt out west, fell into hard luck and had to pawn one of his suits. Just before starting home he managed to get it out again. When he reached home his mother, while unpacking his trunk, came across the coat with the pawnbroker's tag on it.

"John," she inquired, "what is this tag on your coat?"

John, not wishing to have his mother know of his temporary embarrassment, said:

"Oh, I was at a dance and checked my coat."

Soon she came across the trousers with the same kind of a tag on them.

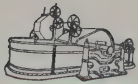
"John," she demanded, "what kind of a dance was that?"

* *

Sub Editor

"A correspondent wishes to know why they whitewash the inside of a henhouse."

Editor—"Tell him it's to keep the hens from picking the grain out of the wood."—*Boston Transcript.*



SENSE *And* NONSENSE

Young Hopeful—Father, what is a traitor in politics?

Veteran Politician—A traitor is a man who leaves our party and goes over to the other one.

Young Hopeful—Well, then, what is a man who leaves his party and comes over to yours?

Veteran Politician—He, my son, is a convert!—*Ex.*

✤ ✤

Utilizing Paper

Although there is a great shortage of paper, it is unlikely that many of us have carried economy to the extent indicated in a letter received by a school teacher the other day. "Dear Sir" it ran, "Please excuse Tom being late, but our gas leaks, so we couldn't cook any breakfast. Please send a man to put it right. P. S.—Please let him take this note on to the plumber."

✤ ✤

A Heroic Rescue

Two Irishmen were turned over by a wave while out for a sail. One of them swam to the shore, and after a short rest was seen to start back toward the other man, who was still wrestling with the waves.

"Why, what are you going back into the water for, Pat?" inquired a bystander.

"Why Oi had to save mesilf foirst," said Pat, "and now, begorra, Oi'm goin' back to save Moike."—*Yellow Strand.*

✤ ✤

What a different world this would be if we used our eyes to see the best in others and encouraged each other by speaking of it.

✤ ✤

When a fellow has half knowledge of a subjects he finds it's the other half that would really come in handy.

✤ ✤

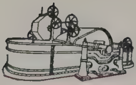
Father's Dignity

Her father had given her a wonderful set of mink furs for Christmas. She was in raptures over their beauty.

"And to think such wonderfully beautiful furs could come from a low sneaking little beast."

Her mother's expression was pained.

"Why daughter, how can you speak so of your father!"



(Continued from page 5)

cylinders, five primary presses, two main presses and sixty dryers, calendar stock, reel (drum type) and slitters and two-bar compensating winder. The frame is of unique design and extra heavy construction, yet all parts are readily accessible. Their great strength eliminates vibration and insures long life.

* *

There are a few fellows in America to whom we would like to say: "If you don't like America go right back to your own country."

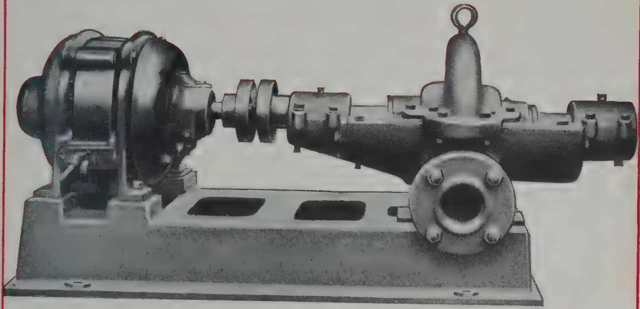
I wonder what would happen
If we all went on a strike,
And everyone refused to touch
A job he didn't like?

Suppose the cows and chickens quit,
And wheat refused to grow,
And corn and clover threw a fit,
And wind just wouldn't blow?

Mankind has such an easy life
He thinks he owns the earth—
If these things happened he would learn
How little he is worth!
—*Farm Bureau News, Marion Co., Mo.*

Leadership

LEADERSHIP in any line is attained only by conspicuous superiority. The Valley Iron Works Co. has through years of determination to achieve betterments in paper making machinery, earned the enviable position of leadership which it now enjoys. The Valley Iron Works Co. monogram identifies the modern equipment in many of the country's largest and most prominent paper making institutions.



Made-To-Measure Pumps

THERE is one big outstanding reason why Valley Iron Works Co.'s Centrifugal Pumps have been so notably successful and that is:—Every Centrifugal Pump built by the Valley Iron Works Co. is built to measure up to the individual requirements of the particular job for which it is intended. No two manufacturing situations are absolutely identical and require special equipment to produce the highest efficiency.

If you have a pump problem,
we can solve it.

Valley Iron Works Co.
APPLETON WISCONSIN

Put Your Problems Up To Us

OUR thirty-five years of actual, practical experience and our modern engineering department is at your service to help you locate and overcome all difficulties connected with pulp or paper making machinery. Consultation is free of charge and without obligation on your part.

We design pulp and paper making machinery to meet any requirements; supply standard machines in any quantity, and are builders of—

Cylinder Machines. Acid Tanks.
Vesuvius Oxidizing Sulphur Burners.
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Barkers and Barker Attachments.
Chippers, Re-Chippers, Chip Screens.
Knot Screens (Revolving).
Diaphragm Screens.
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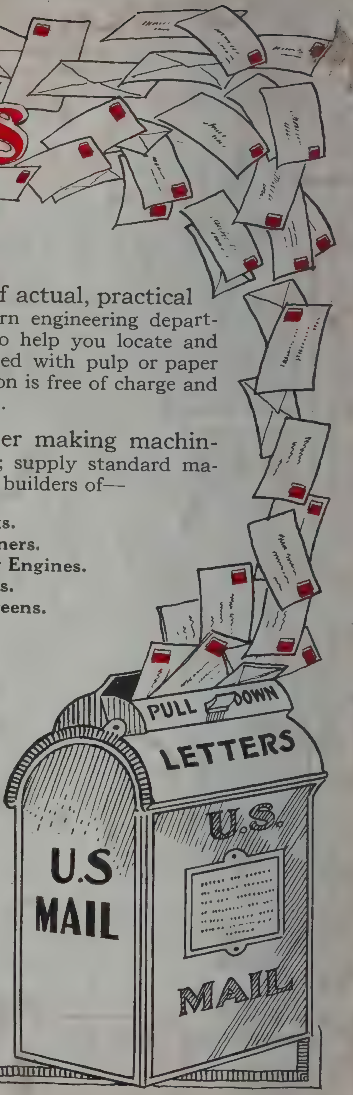
Valley Iron Works Co.'s Centrifugal Pumps.

Valley Iron Works Co.
Appleton, Wisconsin.



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DECEMBER
1920

JANUARY
1921

The BEATER

May the Spirit of Christmas
Bring You Cheer, and
Make Lighter and Brighter
The Way of the New Year

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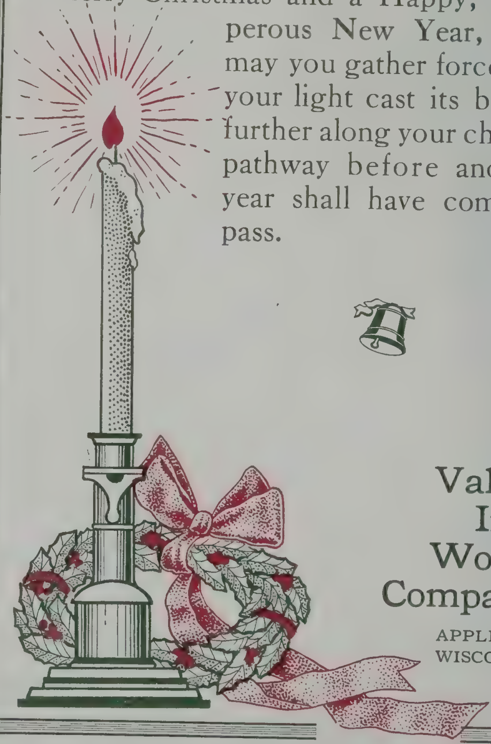
OUR WISH

'TIS Christmas Tide and nearing a New Year. So we wish you a Merry Christmas and a Happy, Prosperous New Year, and may you gather force and your light cast its beams further along your chosen pathway before another year shall have come to pass.



Valley Iron Works Company

APPLETON
WISCONSIN

The
BEATER

A Publication for
Paper and Pulp
Manufacturers

PUBLISHED BY
Valley Iron Works Co.
Appleton, Wis., U. S. A.

Volume VII DECEMBER, 1920—JANUARY, 1921 Number 3

Nineteen Twenty

THE year 1920 has witnessed in general, the growth and further expansion of all lines of industry. Particularly, has there been a great growth in the paper industry and in the lines of endeavor which cater to its requirements.

During the war, due to the fact that the government requisitioned so much material of all kinds, little if any expansion was undertaken by the paper manufacturers. However, since December, 1919, scores of new mills have been built or are being built, and as many others have undertaken changes and repairs. Consequently new machinery of all kinds and types in great quantities have been demanded from the machinery builders.

It was largely due to this great demand for Valley Iron Works Products, that it was necessary for the Company to double its capacity. The additions made, which consisted of the building of a new foundry and another new erecting room, were carried on during the bitterly cold period which ensued between January and April, 1920. May saw the completion of the work. It was possible only then, to turn full attention to the heaviest schedule of contracts that the Company had ever been confronted with.

In spite of the many problems incurred in filling deliveries and in carrying on the large routine of work, it was the privilege of the Valley Iron Works Company to introduce to the paper industry, its first *paper* *machine*, the *Niagara Beater*, *P. A. P. A. Pulp and Paper Screen*, and the *Billingham Centrifugal Old Paper Stock Washer*.

The industry has as yet heard but little of the *Paper Machine*, but will, we know, hear much in the near future regarding it.

It has heard a great deal regarding the *Niagara Beater*, which constitutes the most progressive step toward raising beating engine efficiency, made during the last twenty-five years.

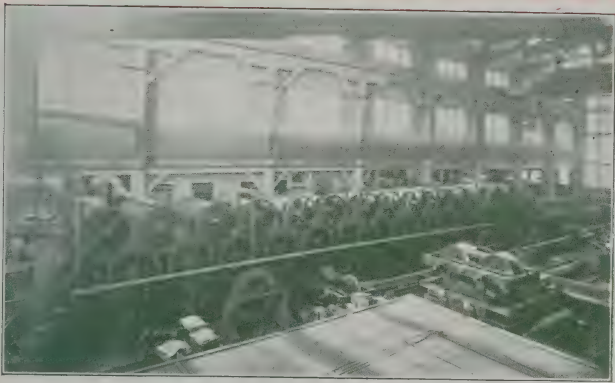
It has heard but little regarding the *P. A. P. A. Screen* and the *Billingham Washer*, but during the early period of 1921, it will be our pleasure to introduce these exceptionally capable machines. The introduction will be made through the medium of *The Beater*, and it will be well worth while, therefore, for every paper manufacturer to closely watch these pages during the months of February, March and April.

* * *

Paper From Veneer Waste

IN the wood waste from veneer factories, the U. S. Forest Products Laboratory sees considerable raw material suitable for the manufacturer of high grades of paper. The cores of many kinds of veneer logs, now used in a large part for fuel, would make excellent pulpwood. In addition, a large part of the clippings and small veneer waste, which amounts to one-fifth of the total veneer cut, probably could be turned into pulp stock with profit.

Among the veneer woods whose waste has paper-making possibilities, are red gum, yellow poplar, cottonwood, birch, tupelo, basswood, and beech. Many veneer factories cutting these species are already within shipping distance of pulp mills. In certain other cases, veneer factories are so grouped that they might furnish pulpwood enough to warrant the erection of a centrally-located mill. Other economic factors being favorable such a mill could profitably operate on a daily supply of veneer waste equivalent to 50 cords of ordinary pulpwood. Of course, the construction of a mill should be undertaken only upon the advice of a competent mill engineer after a careful survey of local conditions.



Valley Iron Works Ships Its First Paper Machine

Is the first machine of the kind ever made in the Fox River Valley, and outside of Beloit the first one ever made in Wisconsin—is a five-cylinder machine made for the H. W. Johns-Manville Co. plant at Manville, N. J.—firm has started to build a similar machine to be sent to the H. W. Johns-Manville Company plant at Waukegan, Illinois.

THE first paper machine ever made in the Fox River Valley and the only one ever made in Wisconsin outside of Beloit, is being shipped this week from the Valley Iron Work's plant here to the H. W. Johns-Manville Co. plant at Manville, N. J. The machine which is of the five-cylinder roofing paper type, is 225 feet long, will make a sheet 80 inches wide and weighs more than 400 tons. It requires 26 freight cars for transportation to the New Jersey city. It will have a capacity of fifty tons of paper daily.

©
TRADE MARK

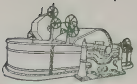
Shipment of the machine marked the beginning of an epoch in machine construction in the Fox River Valley. The Valley Iron Works has recently completed a large addition to its plant to take care of its increased production. Work has been started on a similar machine, which is to be sent to the H. W. Johns-Manville Company plant at Waukegan, Ill. The company intends to continue in the paper machine making field and has invested a large sum of money in extra machinery, patterns and equipment for that class of work.

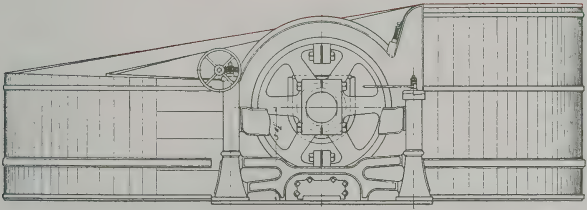
* *

To Add Force to Wisconsin Current

THE low stages of the Wisconsin, Fox and Peshtigo Rivers caused mill men considerable trouble late the past summer and fall. Now comes the Wisconsin Valley Improvement Company of Wausau with a plan for adding to the force of the current in the Wisconsin amounting to ten per cent increase in the summer and nine per cent in the winter. The company proposes to erect a giant storage reservoir at the point where the Spirit River empties into the Wisconsin near Tomahawk. The reservoir would hold 500,000,000 gallons of water and will cost around $100,000.

Besides adding to the force of the current it will safeguard the valley to some extent against the disastrous floods of the spring.





The
NIAGARA BEATER

OUR "Niagara" is a fast maker and a firm holder of friends. Although only in our midst since the last of June, it has been royally received and welcomed. Due to the fact that the "Niagara" is a "Super" beater, it is able to be in more than one place at a time. It has accordingly accepted with thanks, invitations for permanent homes in the following mills:

Wausau Paper Mills Co.
Bryant Paper Co.
King Paper Co.
Sears, Roebuck & Co.
W. C. Hamilton & Sons.
Thilmany Pulp & Paper Co.
Paper Converter Corporation.
Neenah Paper Co.
Menasha Ptg. & Carton Co.
E-Z Opener Bag Co.
Pride Pulp & Paper Co.
Kimberly-Clark Co.
Marathon Paper Mills Co.
Fox River Paper Co.
Gilbert Paper Co.
Geo. A. Whiting Paper Co.
Con. Water Pow. & Paper Co.
Dells Paper & Pulp Co.
Holden Paper Co.
Berkshire Hills Paper Co.
Klearflax Linen Rug Co.
Jessup & Moore Paper Co.

✤ ✤

Blessed is the snow shoveler who isn't afraid to clear off an inch or two of his neighbor's walk.

Trade Mark

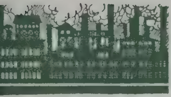
Valley Iron Works Co.'s Pumps Pay in Pulp Mills

A TREMENDOUS item of expense in paper mills and other similar plant is that of power. Often this power expense may be called pumpin expense, particularly because of the tremendous waste often involve in this particular work. A single pump costing around $300 may run up power expense of $18,000 and more in fifteen years. If this is one of you pumps it will cause you a lot of worry. Yours may not be so bad at wasting It may be worse. Have you looked into the matter?

We can see but one reasonable excuse for using inefficient pumps and tha is in being unconscious of their waste of money in power, or in not being awar of the fact that it can as well be avoided. Valley Iron Works Co.'s Pump will stop the unnecessary waste, and every pump is guaranteed. If yo doubt our claim for the pumps, rely on our guarantee; it is good. We ar placing practically all of the pumps in some of the largest pulp mills in Wisconsin, where fifteen to twenty pumps are required for each mill, and it woul be unreasonable to suppose that these people would continue to throw ou their old pumps and put in ours if they were not finding it profitable to do so

In many places we have replaced the out-of-date pumps and installe Valley Iron Works Co.'s Pumps that are doing the work with one-third o the power originally used. We are replacing some of the best makes of moder pumps, that are comparatively new and claimed to be high-class pumps We could not replace these pumps if there were not a good reason.

There are some cases where the conditions bar high efficiency. That is in cases where the speed available is not such as to permit a design that make high efficiency possible.



©

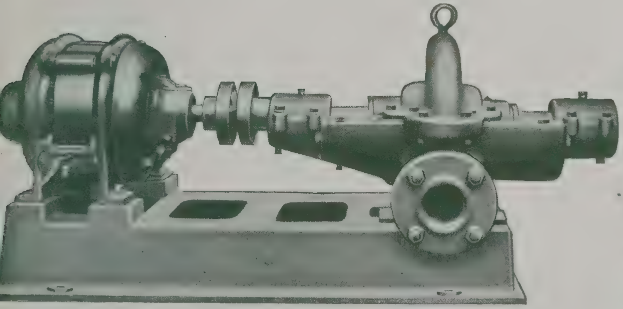
Trade Mark

We have made this matter of efficiency a life study and will be glad to give you the benefit of our experience in securing the most efficient pumping installations possible under existing conditions.

Don't fail to give as complete data as possible. You have everything to gain and nothing to lose by so doing. If your data is not reasonably correct you need not look for best results in power. We cannot fit conditions unknown to us, and a failure to fit the conditions means loss in efficiency in proportion to the incorrectness of the data. You, therefore, cannot be too particular in giving the data correctly.

VALLEY IRON WORKS CO.

APPLETON, WISCONSIN



Think it Over

IF there is the least bit of doubt in your mind as to the solidity of the American business structure; or if you question the strength of our financial institutions or the health of our economic life, here are a few things you might well turn over in your mind.

Right now we are emerging from one of the greatest business readjustments in the history of the world. Quite true, we are still in the midst of the operation, but the opinion of those best informed is that we have passed through the most trying and hazardous period.

A year ago we looked forward with dread and fear to the threatened period of deflation—to the inevitable period when prices were to begin dropping, when buying would slacken and the public would begin considering value. Dire predictions were made. Business depression and panic would be followed by failures and business embarrassments, they said. There would be widespread unemployment and labor trouble certain to lead to a collapse of our whole business structure.

But, the period has been met. There has been no panic, nor has there been any danger of one. There has been no widespread unemployment nor serious labor trouble. Business failures have not been more than the normal number. There has been no collapse and the country is not going to the infernal bow-wows—not by a long shot.

To his great credit, the American man has kept his head splendidly in a trying situation, and the American business man continues to go about his business sanely and reasonably, adjusting his affairs gradually to the basis that the changed times and conditions demand.

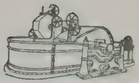
The merchant, today, may no longer find it possible to make war-time profits, but he has intelligence enough to realize that, as deflation proceeds, the dollar becomes more and more valuable—as buying value is the only gauge of a dollar's worth deflation has its bright side. Think it over.

* *

The Ajax Paper Mills is the name of a new company recently formed and incorporated under the laws of Pennsylvania with a capital of $150,000, to operate in New York, A. Warshow, 464 Broom St., New York, being its corporate representative.

* *

As a usual thing, a radical is a person who wants a new deal every time somebody else gets a high card.



Our Timber Resources

ACCORDING to Charles Lathrop Pack, president of the American Forestry Association, we are consuming timber three times as fast as we are producing it. Experts predict that our saw log lumber will be gone in fifty years. Fire destroys more than $20,000,000 worth of timber every year and kills the reproduction upon thousands of acres of forest lands.

Forests can be protected from fire, regrowth can be encouraged, conservative cutting can be practiced, reforestation can be accomplished, but it takes from fifty to one hundred years to mature a new timber crop.

Forest devastation must be stopped, lands now in forest must be kept continuously productive; forest lands now devastated and idle must be put to work if we hope to avert complete exhaustion of our timber resources within the next fifty years.

That is the problem which the American Forestry Association has before it.

An excellent summary of the conditions as they exist in New York State (which applies quite as well to other timbered regions) appeared in the *New York Times* a short while back. It said:

"Few people realize that one-half of the land of the Empire State is forest land. In its present condition this land produces only one-fifth of the wood that is consumed in the state, and even at that we are cutting every year five times more timber than is grown. The state is the greatest consumer of wood in the Union, its annual bill being over $60,000,000. Almost all this money goes outside the state, and the cost of the raw material is enhanced by freight charges, often from the Pacific Coast. In addition to the makers of books, newsprint and paper containers, many industries depend largely upon the wood supply—railways for ties, coopers for hoops and staves, vehicle makers for wheels and spokes, tool makers for handles, and also makers of lumber, sashes, blinds, laths and shingles. Without a cheap and ready home supply of wood many of these industries will be obliged to move to other states.

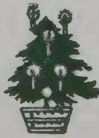
"To stave off the utter exhaustion of our resources, the Conservation Commission furnishes a million trees yearly to individual land owners and itself plants about 5,000 acres. Yet with a total of some sixteen million acres available, the major problem is not only unsolved but virtually untouched. The commission now proposes a new plan. Under this the state is to be divided into ten forestry districts, each in the charge of a trained and experienced forester. The districts are to be administered with a view to a steady maximum productivity of the forest. Much can be done also in caring for the growing trees. Thinning as well as planting is necessary to the best results. By carefully pruning dead limbs, and painting the larger wounds, rot can be prevented which, if the tree were neglected, would impair and often destroy the value of the trunk. The study of fungi, insects, birds and rodents has a highly important relation to the health and fecundity of the forest. In much of this work the foresters will act only as advisers and instructors to the individual owners, but the results should be none the less decisive. Their activities will be similar to those of the farm bureau agents, who have done so much to increase the yields and the profits of the farmer.

"In Europe, notably in Germany and Norway, scientific forestry was long ago proved to be eminently workable and profitable."

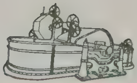
New Beater Speeds Paper Making

THE eyes of paper mill men all over the country are on the shops of the Valley Iron Works here, where some powerful machinery recently has been turned out that may in part revolutionize papermaking. The machine is a beater that outstrips the well known Holland type, it is said. Mill men from all over the country have visited the shops to see these machines.

Heads of a Wisconsin paper mill collaborated with the experts at the shop in the perfection of the new beater, which is called the "Niagara." Months were spent with experiments. The "Niagara" will circulate the materials five or six times as fast as the old Holland type, it is said. It took the old type an hour to beat 2,000 pounds of stock. The new machine does it in twenty minutes. It takes up the same room. Fifteen of these beaters have been produced.



The latest paper machine to be turned out is ready for shipment to the H. W. Johns-Manville plant at Manville, N. J. It is a



five cylinder roofing paper machine. Twenty-six cars will be required to transport it to the eastern plant. Fourteen carloads of the "dry" section of the machine were shipped in September. The outfit weighs 400 tons and will be 225 feet long when erected. The machine contains sixty driers, thirty-six inches in diameter by eighty inches wide. It will turn out fifty tons of roofing paper daily.

This is the first paper machine made in the state outside of Beloit. The company is preparing now to build another machine for the same firm.

* *

New Peshtigo River Dam

THE beginning of November saw the completion of the new dam over the Peshtigo River at the Twin Cities, Menominee and Marinette. It was constructed by the Marinette and Menominee Paper Company. The opening of the dam was officiated in by Mayor Murphy of Marinette and Mayor Doyle of Menominee. The spillway section of the dam is 350 feet long. The remaining 250 feet consists of Taintor gates, twenty feet wide, a log sluiceway six feet wide, and a fishway five feet wide. The Taintor gates are twenty feet wide and thirty feet deep. They are operated by an electric hoist.

The Menominee - Marinette Company has recently added a three-story storage house and a two-story office building, besides numerous improvements about the plant.

* *

Denies Paper-Pulp Merger

PHILIP T. Dodge, president of the International Paper Company, authorized a statement on Monday denying reports that his company was a party to a "Giant merger of paper and pulp interests in Canada." In his statement Mr. Dodge said further:

"The International Paper Company is not proposing to part with its mills, their control or the sale of its products. In addition to its various news-print mills in the United States, it is now pushing to completion at Three Rivers, Canada, a mill with a capacity of 240 tons per day.

"The International Paper Company is not engaged in profiteering or in stock promotions."

* *

Menominee Mill Coming Fast

The Hoskin-Morainville Paper Mill now under construction at Menominee, Mich., is rapidly nearing completion and operations are expected to commence about February first.

JEST FUR FUN

Written Especially for the Beater by Arthur J. Minz

NEVER do your Christmas shopping today when you can put it off until tomorrow—the things you have always wanted are waiting for you to come and get them anyway.

Be sure to put your own address on the Christmas mailing package, otherwise it might become lost and you would never understand why you do not receive a return present.

Wait until the last thing before you send off your long distance presents. It is so delightful to get some article after you have made a New Year's resolution to get along without it.

Ponder over your best girl's present a little longer—and then end up by sending her a box of candy—just like you did last year.

Get mother's present last. She's used to it.

* *

Put on your old fur bonnet,
With the earlaps upon it,
And we'll hitch old Dobbin to the sleigh,
For the fields of clover
Have been covered over
And the sleighing's fine today.

A famous financier was taken seriously ill at the age of 90 and felt that his end was near.

"Nonsense," said the doctor, "the Lord isn't going to take you till you've passed the hundred mark."

"No, my friend," said the aged banker, "that wouldn't be good finance. Why should the Lord wait till I reached par when he can pick me up at 90?"—*The Argonaut.*

* *

We all need exercise, that's true;
We should develop leg and arm.
A game of golf is good for you,
But beating rugs will do you harm.

—*Luke McLuke.*

We may be classed as being bugs
For saying so, but then
We've always thought that beating rugs
Makes rugged men.

* *

Two very pretty girls met on the street and kissed each other rapturously. Two young men watched the meeting. "There's another of those things that are so unfair," said one.

"What is that?" said his friend.

He pointed to the scene: "Women doing men's work."—*Woodworker's Record.*

Last But Not Least

Watch the Next Issues of

The Beater

for information Concerning

the P. A. P. A. Inward
Flow Screens

for Pulp and Paper

They are Exceptional

©

Trade-Mark

Have You a Production Problem?

FOR more than thirty-five years we have given of our experience and service in analyzing and overcoming problems met with in the economical production of pulp or paper.

With our highly specialized corps of engineers we are ideally equipped to render a service which has become invaluable to the pulp and paper mill industry.

If you have a problem which involves pulp and paper making equipment of any kind, put it up to us.

We design and build paper making machinery to meet any condition, and can supply standard machinery in any quantity on short notice. Our complete line consists of

- **Niagara Beaters**
- **Vesuvius Oxidizing Sulphur Burners**
- **Beating, Washing and Bleaching Engines**
- **Barkers and Barker Attachments**
- **Chippers—Re-Chippers—Chip Screens**
- **Knot Screens (Revolving)**
- **Diaphragm Screens — Felt Washers**
- **Blow-Pits**
- **Cylinder Machines**
- **Deckers (Single and Double)**
- **Stuff Chests (Vertical and Horizontal)**
- **Shredders and Special Washers for Old Paper Stock**
- **Wet Machines and Patent Roll Skinners**
- **Bronze, Semi-Steel, Lead and Iron Castings**
- **Valley Iron Works Co. Centrifugal Pumps**
- **Acid Tanks**
- **P. A. P. A. Rotary Screens**

* * *

VALLEY IRON WORKS CO.

Appleton, Wis.

Produced by The Cramer-Krasselt Co.

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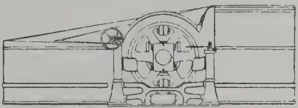
THE BEATER

A publication for Paper and Pulp Manufacturers



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Vol. VII FEBRUARY-MARCH 1921 No. 4

"1921 WILL REWARD FIGHTERS"

BUSINESS is a battle and the battle-ground is situated just north of the ears. The winners have usually better weapons, greater resources, better fighters and finer morale than the losers. The Valley Iron Works Company has been classed with the winners in the past and intends to stay there. Business at present might be better. It's that way everywhere But we entirely agree with the Chicago Tribune, which has adopted as its slogan "1921 will reward fighters." We believe that it will and are out for our share of the reward.

Our business weapons are manufactured products which we are not afraid to guarantee and which we back up with an exceptional service. We manufacture the Niagara Beater, a beating engine whose performance, wherever installed, has won for it an enviable reputation. We design and build paper making machinery to meet any condition and can supply standard machinery in any quantity on short notice. Among others, this standard line includes cylinder machines, sulphur burners, beating, washing and bleaching engines, barkers, chippers, knot screens, diaphragm screens, blow-pits, deckers, stuff chests, wet machines and patent roll skinners, centrifugal pumps, acid tanks, P.A.P.A. rotary screens, etc. All of our products are sold under a full guarantee and defective parts are replaced without charge.

Our service is not an uncertain quantity, hard to define, as is frequently the case when "service" is advertised. We keep delivery promises and when a machine is delivered our interest in it does not immediately stop. All Niagara Beaters and, in fact, all of our larger and more elaborate machines, are installed by our men, and an expert remains "on the job" until the machine is in operation and those who are to run it are thoroughly familiar with it. We have, at all times, trained men ready to send out at a moments notice, who can correct any trouble which might arise in the operation of our machines. We can send men to any portion of the United States or Canada where our machinery is in use. We also have a crew of repair men, who may be called upon at any time for night or holiday work, and who can cope with practically any emergency which might arise in connection with paper mill machinery. All of this service, however, is what we have to offer after your equipment wants are filled. One of our greatest services is that offered by our corps of highly trained engineers and service men, who can advise with you at any time, analyze your problems and aid you in the proper selection of paper or pulp mill equipment, best suited for your individual needs.

In our fight for 1921 business, we have among our resources a fine plant to which large additions have been made during the past year, and the most up-to-date machine shop and foundry equipment obtainable. Our fighters include a large corps of first class workmen under first class management, a group of engineers and service men who are specialists in their lines, an active sales force backed by real co-operation in the home office. And through this entire personnel can be found a fighting spirit and a high determination to win for the firm and for itself some of the 1921 reward by serving to the best of its ability the customers of the Valley Iron Works Company.

FOR THE GOOD OF THE WORKING MAN

Pat and Mike were discussing the news of the day.

"And phwat do you think of the increase in carfare, Mike", asked Pat of his fellow workman.

"Shure, and it's the first time these big corporations has done anything to benefit the poor working man."

"Benefit! Why Mike, it's been **increased** from five to sivin cents."

"Yes, that's just it. Before when I walked to and from me work I saved ten cents. Now I save fourteen."

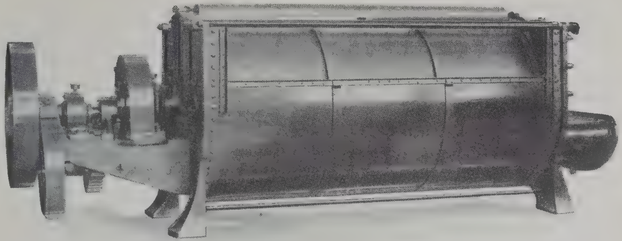


Fig. 1 P. A. P. A. Pulp Screen (System Spangenberg)

P. A. P. A. SCREENS

THE problem of screens has for years been confronting every pulp and paper maker. Various types of screens have been designed and tried out with more or less success but one is safe in stating that so far no screen has been put on the market on the American continent that can be said to possess all the qualities desired of a first class screen.

The type of screen most commonly used today is the flat screen. Everybody with experience of this screen type knows how noisy, ineffective, labor and power consuming these screens are; the cost of repair and upkeep of the flat screen together with the large floor space they require are other serious drawbacks. In spite of all these disadvantages, the flat screen has held its position in the pulp and paper mills for years, not because it is liked by anybody, but because no other screen on the market could give as good service.

Theoretically, the rotary, inward flow screen is the correct one to use. A large number of rotary screens have been built and put to the test in the mills. However, after running a few months, most of them have had to be thrown out on the scrap pile as failures. A few have been left in the mills but they are a constant source of expense and annoyance to their operators. Rotary screens have been built with shaking vat, with shaking screen cylinders, with vibrating plates between cylinder and vat, almost every principle for screening has been employed, but without success. The principal reason for these failures has been that the screens have done the work merely of mixers, and have not effectively screened the stock.

That the inward flow rotary screens which have so far been put on the market are merely mixers, is proved by the fact that they have not been adaptable for pulp screens. In a pulp screen, the screening qualities are put to a much more severe test than in a paper screen.

In 1907, a young Swedish engineer, working in an American paper mill began work on the designing of a screen which would possess all of the advantages and none of the disadvantages of those then in operation. His first model was built in 1911 and was tried out at Gustafsfors Fabrik A B. Skapafors, Sweden. The screen proved a success and has since gained a reputation for reliability and efficiency, cheapness and easiness to operate, which has placed the screen in every pulp and paper mill of high standing in Sweden, Norway, Denmark, Finland, France, Russia and Japan. Experience in the use of the screen, has resulted in numerous improvements.

It seems strange that this screen type, designed mainly with American conditions in mind, has not been put on the market in the United States and Canada before now. This is in a way fortunate, however, as the screen has left the experimental stage and is now presented for sale, thoroughly tested and reliable.

This screen, the P.A.P.A., System Spangenberg, equally well adapted for screening both pulp and paper, consists of one slowly revolving not shaking perforated cylinder which is placed in a vat so deeply that the stock covers practically the whole surface of the cylinder, only leaving that much of the cylinder uncovered as is necessary in order to keep the slots clean.

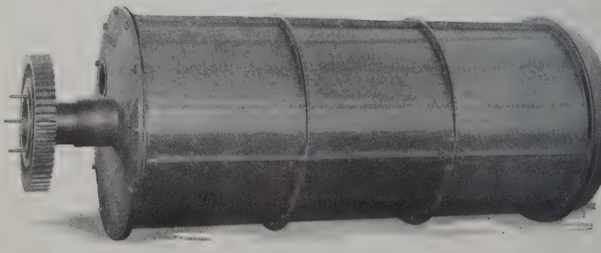


Fig. 2 P. A. P. A. Paper Screen (System Spangenberg)

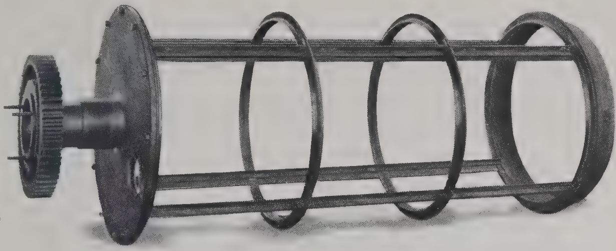


Fig. 3 Cylinder Frame

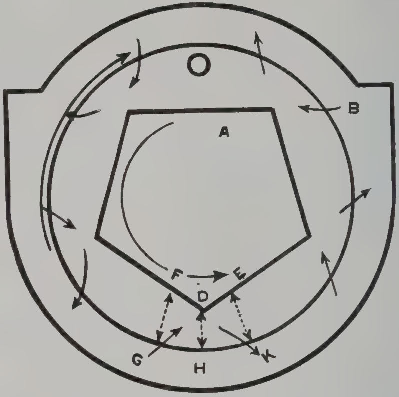
The cylinder is composed of easily exchangeable screen plates of phosphor bronze.

The cylinder is open in one end in direct communication with the outlet of the screen and in this end rests on five lignum vitae bearings. In this end the tightening consists of two felt-lined metal bands. Provision is made to prevent forming of lumps between the cylinder and the bands by means of pressure water.

The cylinder is closed in the other end, and this end is drawn out into a sleeve through which the power is transmitted. Here the tightening consists of suitable packing box arrangements.

The inward suction of the stock through the cylinder is created by means of a polygonal drum inside of the screen cylinder. This polygonal drum is entirely closed in and is made of cast iron positively water tight and securely fitted to the driving shaft.

To prevent the stock inside the screen-cylinder rotating with the polygonal drum, the cylinder is equipped with suitable ribs. The drum fills practically the whole of the interior of the cylinder, thus preventing the formation of lumps in the stock; further, the drum revolves entirely covered with stock is not exposed to the air, which feature prevents foaming.



This cut illustrates the principle of the

P. A. P. A. SCREEN

The motion of the stock is caused by the revolving of the polygonal drum A, with higher speed and in opposite direction of the screen cylinder B.

The distance D-H is smaller than the distances F-G and E-K. When drum A revolves and point D comes on the extension of the radius on which point E is located, the space in this point between the polygonal drum and the screen cylinder will be smaller and consequently a pulsation outwards will take place. When point D passes the extension of the radius on which point F is located, and goes over where it is on the diagram, the space between the drum and the cylinder becomes larger and an inward suction takes place.

KIND	TONS	PLATE	Size	H. P.
Newspaper	27	.024	3	4
	40	.024	3	4
Kraft Paper	17	.024	1	4
	32	.026	2	4
Sulphite Pulp	18	.020	2	4
	15	.016	2	4
	17	.018	2	4
	14	.014	2	4
Sulphite easy Mach.	28	.024	2	4
Kraft Pulps	22	.024	2	4

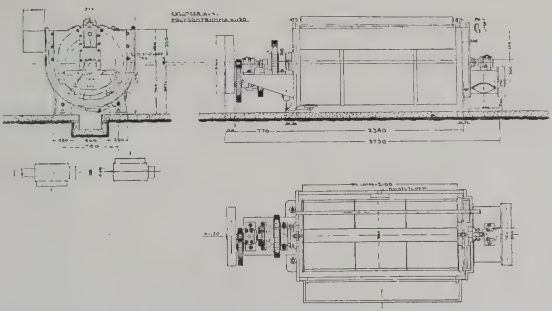


FIG. 4. PULP SCREEN

The vat consists of cast iron end frames and iron plate walls. The iron plate is lined with copper for sulphite pulp and paper, unlined for sulphate. The vat inside is absolutely smooth and has in the bottom a drain easily accessible from outside.

The cleaning of the slots is done by a spray-pipe placed inside the cylinder and the water is collected in a gutter outside the cylinder.

The drive is direct on the axle of the polygonal drum. The screen cylinder is driven from the axle by means of gear wheels. All gearing is milled and well protected by steel guards.

The bearings are SKF ballbearings and those placed nearest to the screen are equipped with extra tightening arrangements for protection against water and stock.

ADVANTAGES:

No shaking parts.
Simple rigid construction.
Automatic cleaning of the slots.
Large capacity.
No foaming.
Long lasting screen plates.
Comparatively light screen plates, due to their particular shape.
Small power consumption.
Exceptionally clean pulp and paper.

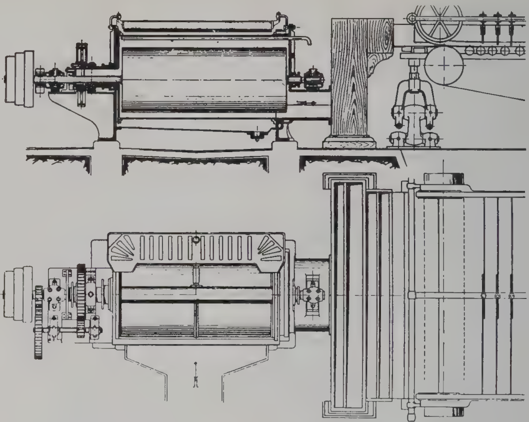


Fig. 5 Paper Screen

Requires practically no attention.
Noiseless operation.
Can be placed directly on the floor without special foundation.
Easily and quickly erected.
Comparison between size of slots required on P.A.P.A. Screen and on Flat screen for pulp of same degree of cleanliness:

P.A.P.A.		FL—T
.016″ cut	equals	.010″ cut
.020″ cut	equals	.014″ cut
.024″ cut	equals	.018″ cut

Opinions of Some of the Users

Stromsnas Bruk, Nov. 11th, 1918.

Aktiebolaget Karlstads Mekaniska Verkstad,
Karlstad.

Gentlemen:-

In reply to your letter of the 27th ult. we are pleased to herein give our opinion of the Spangenberg Screen, size 1, which was delivered from your works.

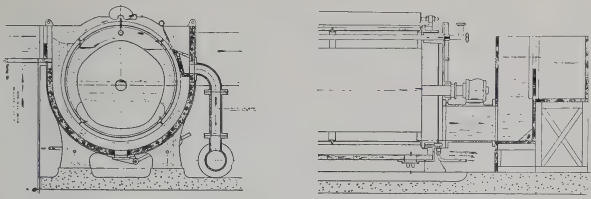


Fig. 6 Pulp Screen

The screen, guaranteed to handle up to 15000 kg. (=16,8 short tons) sulphite or sulphate paper per 24 hours, easily takes care of this quantity. It requires relatively small space, runs very quietly and noiselessly, is strongly built, and screens the stock remarkably well clean. Further, as the screen is easy to handle and has during the one and one-half years it has been running here, required a minimum of upkeep we feel that we have every reason to be satisfied with it and we consider it an excellent screen.

Yours very truly,
STROMSNAS BRUKS AKTIEBOLAG
(Signed) C. H. Sundin.

Karlstad, September 29th, 1917.

Aktiebolaget Karlstads Mek. Verkstad,
Karlstad.

Gentlemen:

One of the five screens, syst. Spangenberg, which we ordered from you has been tried out in our sulphate mills at Stjernsfors, where it has been in continuous use for about half a year. In agreement with your request, we take pleasure in giving our opinion of the screen as follows:

The screen is working in every respect satisfactorily and handles 15-18 metric tons (=16,8—20,16 short tons) airdry kraft pulp per 24 hours with a slot slot of 0,6 mm (0.024 inches).

As compared with our flat screens the Spangenberg Screen has shown following advantages:

It gives cleaner stock in spite of larger slots.

It requires very little attention.

The drive is simple and solid and the screen runs evenly and noiselessly as a consequence of which it can be placed on a comparatively weak construction.

The power consumed is small.

At Stjernsfors we manufacture besides kraft a quality which as to strength lies between easy bleaching and kraft. Of this quality the Spangenberg screen screens approximately 25 metric tons (=28 short tons) airdry per 24 hours.

Yours very truly,
UDDEHOLMS AKTIEBOLAG
Skoghalls Sulfatfabrik
(Signed) Sven C. Son Lindberg

Svartvik Pr. Sundsvall, Nov. 14th, 1918.

Aktiebolaget Karlstad Mekaniska Verkstad,
Karlstad.

GENTLEMEN:

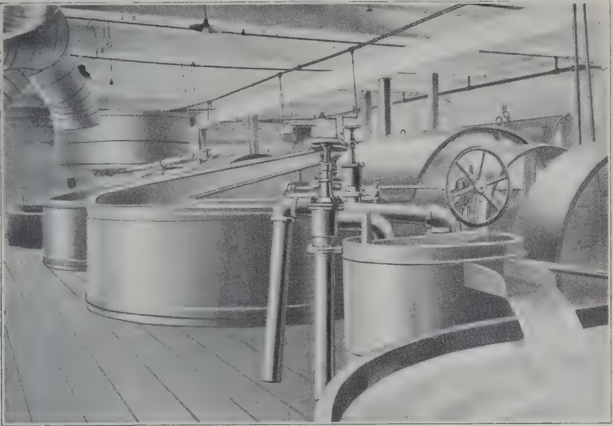
In reply to your letter of the 11th inst., we have pleasure to inform you that the trial of the Spangenberg's screen for cellulose, which you delivered, has given us full satisfaction and we herewith order one additional screen.

Yours very truly,
TRAVARUBOLAGET SVARTVIK
Sulfitfabriken.
(Signed) ARNBJELEKE

TEAR DOWN OLD LANDMARK

One of the land marks of the paper industry in Wisconsin is at present being torn down. The huge acid tower of the Interlake Pulp and Paper Co., of Appleton, a branch of the Consolidated Water Power and Paper Co., which was probably the first structure of its kind to be built in the middle west, is being destroyed, following the completion of a modern concrete tower during the past year. The old structure stood on the top of a bluff above the mill and could be seen for miles.

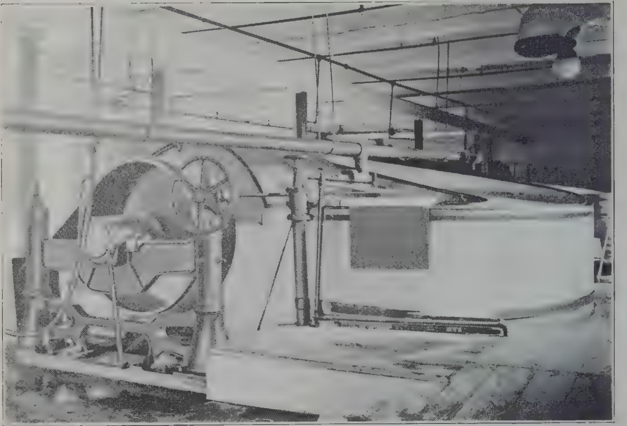
"Fighting Bob" Evans, afterwards Admiral in the United States Navy, was in charge of its construction and of that of the mill proper, on the river bank at the foot of the bluff. Many stories are connected with the building of the plant, one of particular interest which gives an insight to the character of "Fighting Bob". A foot bridge, and pipe line for carrying the acid from the tower to the plant below, was built from the top of the bluff to the upper story of the mill building. This bridge crossed a railroad track and objections to its construction were raised by railroad officials. Finally a switch engine was sent to the plant in charge of a crew who had directions to drive the engine back and forth past the new pulp mill and thus prevent work on the bridge. "Fighting Bob," according to the story, armed some of his men with shot-guns, and informed the engine crew that they had orders to shoot if bothered in their work. Activities on the part of the engine crew were suspended.



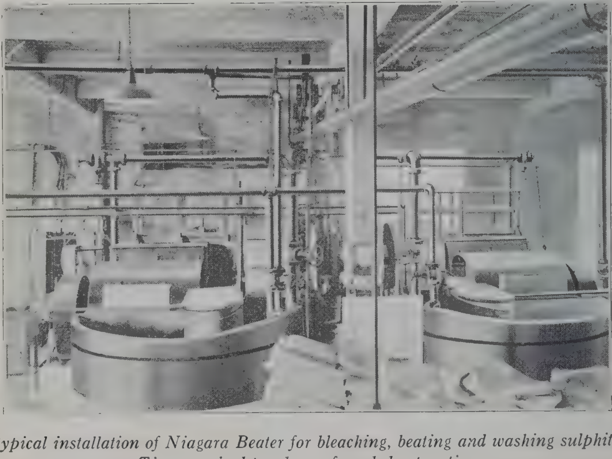
BETTER PAPER MADE WITH NIAGARA BEATERS

TO work for years toward the making of a particularly fine grade of bond paper with only indifferent success was the experience of a well known manufacturer. Thirty days after the installation of a Niagara Beater he was producing a paper which measured up in every way to the standard which he had set. Needless to say, this manufacturer, whose name we will be glad to furnish on request, is a "plugger" for Niagara Beaters.

Not only better work, but more of it may be done with these modern engines. The illustration above and at the top of the following page shows two installations of Niagara Beaters, now on high grade bonds and ledger papers. They are doing the work of four Holland Type beaters on hard stock, and on soft stock are turning out as much as six of the old style engines. The third repeat order for Niagara beaters has just been received from this mill, where three Niagaras are operating three paper machines and a fourth beater is being carried for safety in case of accident.



The Niagara on Rag Stock---Beating time 2½ hours



Typical installation of Niagara Beater for bleaching, beating and washing sulphite. Time required two hours for whole operation

THE BEST JUDGE OF AN ARTICLE IS THE ONE WHO USES IT

Below are listed extracts from a few of the letters which we have received praising the performance of the Niagara Beater. The names of the firms, whose experiences are listed below, will gladly be furnished anyone sufficiently interested to write for them.

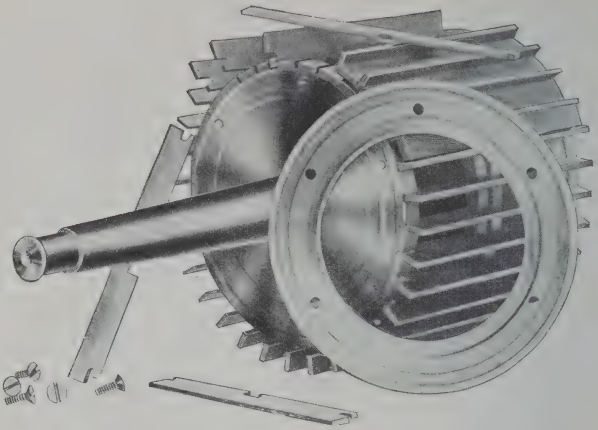
March 17, 1921.

NIAGARA BEATERS ON WRITING PAPER. "It used to take 6½ hours with the Holland beater, we now find we can do equally as good work with the Niagara in 3½ hours. We believe we could shorten this time somewhat as we are losing considerable time in the loading of the Niagara beater. The power consumed with the roll down on a hard brush in the Holland beater is 75 H.P. and in the Niagara beater, 125 H.P. The way we arrived at the power consumed, was by taking cards off our steam engine as neither of these eaters were motor driven. Furnish of both styles of beaters was new cuttings. We are not in position at the present writing to let you know just the amount of labor this beater will save us. We are, however, under the impression that we can do away with three beater engineers." Our 2,000 lb. Niagara Beater here takes the place of four 1,000 lb. Holland Type Engines.

NIAGARA BEATERS ON BOOK PAPER. "We have installed in our mill one Niagara beater which is doing the work of three ordinary type Holland beaters. Through this installation we saved 60% of the initial investment cost. We have one 100 H.P. motor attached to this engine while we would have had to have had three 75 H.P. motors to do the same amount of work, if we were to use the standard Holland type beater. By using one engine against three, we saved two-thirds of the floor space. Our crew on this beater consists of one foreman and two helpers on each shift. If we had used the three standard Holland engines, we would have to use one foreman and four men on each shift. We consider the Niagara beater the most important development in the beater industry in many years. We were so satisfied with the performance of the Niagara beater, that we have just installed two more of them in our new mill. Had we adopted the Holland type of engine, we would have had to have five."

NIAGARA BEATERS ON KRAFT PAPER. "This beater is now making No. 1 Kraft in less than 2 hours and No. 2 Kraft in less than 1 hour. We have at the present time three of the old type beaters standing idle as the result of the installation of this beater."

NIAGARA BEATERS ON BOND PAPER. "We are making a sheet of paper which has been proved by us impossible to make without the use of the Niagara beater, and it is solely as a result of the remarkable work done by the engine that we are now ordering two more for one of our other mills." The mill in question is beating cotton linters in two hours and bleached sulphite in one hour.



New Bandless Roll

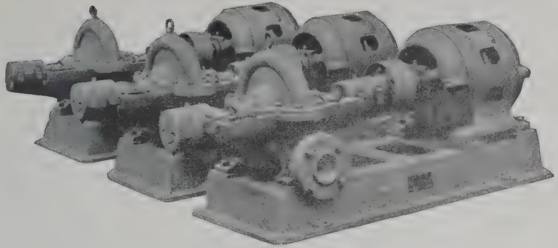
A TIME-SAVER

A time and labor saving device, a portion of the regular equipment of all Niagara Beaters, but one which can be attached to any Holland Type Beater as well, is pictured above. It is the Bandless Roll, and is so constructed that any bars may be removed without taking the roll from the tub.

All that is necessary to remove one or more bars is to detach one of the end rings and drive the bar or bars two inches endwise. They may be easily lifted out. The knife is so slotted as to give bearing on all four heads instead of on the outside ones only, as in the old type of roll. New bars for replacement purposes for the bandless roll may be obtained at the same price as the old style bars, notwithstanding the additional punching required. The device is winning favor wherever installed as it not only saves time, but makes a difficult, unpleasant job, one easy to perform.

BELIEVED IN HIS GOODS

Commercial Traveller—"My love for you, my dear Louisa, excels anything that can be offered in that particular line."—Lit. Digest.



A Battery of V. I. W. Centrifugal Pumps.

"Tailor Mades" vs. "Ready-to-Wear"

There was once a man who decided to save money. Eggs were ninety cents a dozen, the wife needed a new hat and the kids had to have shoes, so he decided to buy a ready-made suit for thirty dollars instead of his usual "tailor made" at seventy-five. It was a fine fit—except for a few minor difficulties. That is, it was a fine fit until he'd worn it a while. Then the collar began to sag in the back, one sleeve slipped up a notch higher than the other, the right lapel krinkled into a fine gravy slide, and enough wrinkles developed under the left arm to put a pug-dog to shame. The trousers bagged in the knees and sagged in the hips. As a whole, the suit performed its function of keeping him warm on a cold day, and it provided him with enough covering to keep him within the laws governing the garments worn by the male of the "so-called human" species. But as a dress up affair, the suit was a total failure.

The same thing holds true of pumps. Centrifugal pumps manufactured by the hundreds from the same patterns and then adapted to fit as many hundred different conditions usually cause more trouble than they are worth. They buck; they leak; they break down; and worst of all they waste a tremendous amount of power.

Valley Iron Works Company Centrifugal Pumps are built to fit the exact conditions under which they are to operate. They are "tailor-fitted" to the job as far as speed, head and capacity are concerned, and in a short time save in power many times their difference in price, when compared with the "ready-made" variety.

On preceding page is pictured a battery of Valley Iron Works pumps, each unit giving excellent service at a minimum expenditure of power. They were made to meet certain conditions and are meeting them, incidentally giving 100 per cent satisfaction.

Valley Iron Works Company Centrifugal Pumps will give you the same satisfaction. All we ask is an opportunity to demonstrate this to you. Write us regarding your pump problems. Send us your specifications and let us give you full information regarding what our pumps will do for you. It won't cost a cent, and you'll be obligated in no way.

TO RESUME OPERATION

The Telulah mill at Appleton, Wis., recently purchased by the Fox River Paper Co., from the Kimberly-Clark Co., and which has been closed down for the past three months, resumed operations March 20. The mill was closed down for the purpose of installing new equipment and among other things two Niagara Beaters were put in. The plant has two paper machines which have been changed from book to writing.

OH DEATH WHERE IS THY STING

One evening several callers were visiting Mrs. K. in the parlor. Suddenly the patter of little feet was heard overhead. Mrs. K. turned to her guests.

"Hush," she said, "the little dears are going to deliver their goodnight message. It always gives me such a feeling of reverence to hear them. They are so much nearer the Creator than we are, and they speak the love that is in their hearts never so fully as they do in the dark. Listen."

A moment's silence, then — "Mama", came the shrill cry, "Willie found a bedbug."—Trumbell Cheer.

SAFE

Clergyman, who sat down next to a slightly intoxicated man. "Do you allow a drunk on this car?"

Conductor, low voice: "It's alright as long as you don't get noisy."—Lit. Dig.

Ninety days from the banker or from the judge? That is the worry now.

A little widow now and then, is relished by the single men.

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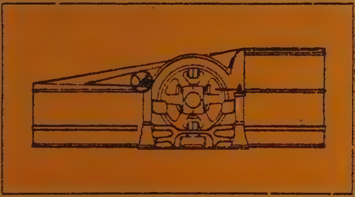
The BEATER



HOUSE ORGAN OF
VALLEY IRON WORKS CO.
APPLETON, WISCONSIN

THE BEATER

A Publication for Paper and Pulp Manufacturers

Published by the
VALLEY IRON WORKS CO.
APPLETON, WIS., U. S. A.

Vol. VII APRIL-MAY 1921 No. 5

A STORY WITH A MORAL

THERE is a story told of a man who bought one of these ready made houses, with all pieces marked and in readiness to be put together. He labored for weeks trying to make the pieces fit according to the written directions and finally gave it up in disgust, putting them together as they seemed to work out to the best advantage. When he had finished, the plate glass front door opened into the bathroom.

Slightly exaggerated perhaps, but the tale has something of a moral. It is practically impossible for a manufacturer to turn out an elaborate article, send the parts from his plant, and be absolutely sure that everything is as it should be, without first putting the parts together.

This is a chance that the Valley Iron Works Company never takes. Every machine manufactured in our plant is erected before it is sent out and is then taken apart and shipped. It would be easier to build some portions of many of our machines in the plants of our customers, but the result is never as satisfactory. For example, even those portions of the Niagara Beater constructed of wood, are built in our shops and the machine is fully erected before it is shipped.

Moreover, our interest in the machines turned out in our plant does not end when shipment is made. A trained man, one of our service staff, is sent out with each Niagara Beater and takes charge of the erecting. This service is also given in connection with all of the larger machines which we manufacture.

Valley Iron Works Company service is again emphasized in the pump testing department. Elaborate equipment has been installed which makes possible the testing of all "tailor made pumps" under conditions the same as those which they will meet in actual operation. Valley Iron Works pumps are right before they are shipped.

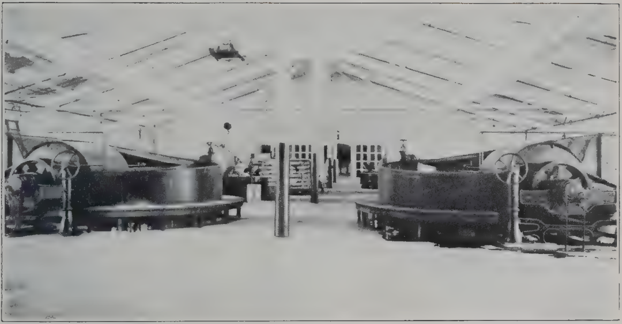
New service features are being constantly added. It is our policy to be ahead of the field in this important department.

We want to be a bit out of the ordinary and we want to make our customers feel that they are dealing with a concern not of the usual stamp when they deal with us. We are depending not only on high grade products to win for us this reputation, but are trying to give unusual, out of the ordinary service, besides. It is one of our allies in the fight for our share of the business of 1921.

HER COME-BACK

"Aw—aw—", began the English Snob, "it must be, aw—aw—, very unpleasant for you Americans to be, aw—governed by people you wouldn't aw—awsk to dine with you."

"Oh, I don't know," said the American girl, "No more so than for you to be governed by people who wouldn't ask you to dinner."



Dual Installation of Niagara Beaters in a High Grade Writing Mill.

A SAVING IN LABOR AND POWER

TO accomplish the same amount of beater work with one man less on each tour would make an annual saving of about $3600. Add to this a saving of approximately 40% on your present power requirements and you will have in dollars and cents the economy that results with the use of Niagara Beaters. And then consider that these new machines make better paper and decide whether or not they are worth while.

The advantages of the Niagara Beater may be quickly summed up:

1. **Shortened Beating Time.**—One beater will accomplish the work of two or three old style Holland beaters.

2. **Less Power Cost.**—The power is more effectively transmitted to the stock with a saving of from 15 to 50 per cent.

3. **Saving in Floor Space.**—A congested beater room can be relieved or additional equipment can be installed without enlarging the old room.

4. **Smaller Initial Investment.**—The houseing of smaller installation lowers the construction costs, and fewer machines will do the same amount of work. The saving in investment for both beaters and power equipment is therefore very large.

5. **Lower Labor Costs.**—Fewer machines do the same work and therefore fewer men are needed.

6. **Uniform Quality of Beating.**—The stock is thoroughly mixed thereby eliminating all dead spots.

The success with the Niagara Beater is general wherever it is used and the wide range of stocks, all the way from fine writings to kraft, made with the aid of the Niagara, emphasizes the excellence of the machines.

According to the story, Congressman Henry Clay Miner arrived at Syracuse, N. Y. as a delegate to the state Democratic Convention and registered, "Henry Clay Miner and valet."

A brawny son of Erin followed, and registered, with a flourish "Michael Murphey and valise."

A young man took his girl to the restaurant one night, resolved to be a good sport, no matter what it cost him. But as the girl ordered, his face fell more and more.

Finally, the girl having come to the end, the waiter turning to him, politely asked "And what do you wish, sir?"

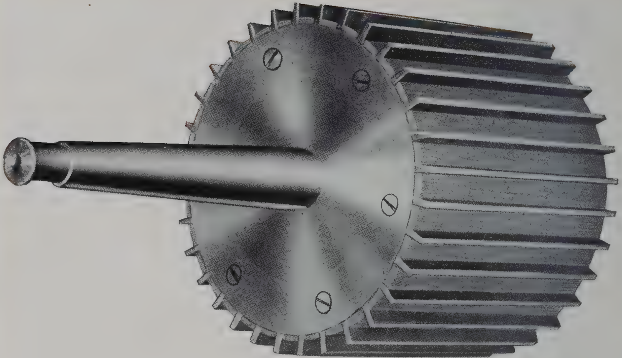
With a look of great agony, the young fellow answered, "Me? I wish I'd stayed at home."

THESE MANUFACTURERS USE THE "NIAGARA"

Below are listed a number of satisfied users of the Niagara Beater:

No. of Beaters

1—Berkshire Hills Paper Co., Adams, Mass.
3—Bryant Paper Co., Kalamazoo, Mich.
2—Consolidated Water Power & Paper Co., Wisconsin Rapids, Wis.
1—Dells Paper & Pulp Co., Eau Claire, Wis.
2—Fox River Paper Co., Appleton, Wis.
6—Kimberly-Clark Co., Neenah, Wis.
4—Gilbert Paper Co., Menasha, Wis.
1—W. C. Hamilton & Co., Wm. Penn P. O., Montgomery Co., Pa.
1—Hummel & Downing Co., Milwaukee, Wis.
1—Jessup & Moore Paper Co., Philadelphia, Pa.
1—King Paper Co., Kalamazoo, Mich.
1—Klearflax Linen Rug Co., Duluth, Minn.
1—Louisiana Celotex Co., New Orleans, La.
1—Marathon Paper Mills Co., Rothschild, Wis.
2—Menasha Printing & Carton Co., Menasha, Wis.
1—Neenah Paper Co., Neenah, Wis.
2—Newton Paper Co., Holyoke, Mass.
3—Paper Converting Corp., Niagara Falls, N. Y.
2—Pride Pulp & Paper Co., Tomahawk, Wis.
1—Scottsville Paper Box Board Co., Scottsville, N. Y.
1—Sears, Roebuck & Co., Chicago, Ill.
1—Thilmany Pulp & Paper Co., Kaukauna, Wis.
1—Wausau Paper Mills Co., Brokaw, Wis.
1—Geo. A. Whiting Paper Co., Menasha, Wis.
4—Whiting-Plover Paper Co., Stevens Point, Wis.



The Bandless Roll

THE BANDLESS ROLL

HOW many of us would go back to the days of the old detachable rims on automobiles. We all remember when the tire went flat in some hot and arid spot. How we labored with sledge hammer, brick, stones or any other crude article we could lay hands on to drive off the bull dog rims. An hour later perhaps if we were fortunate after much cursing, waste of time etc., we succeeded in replacing the tire and went on our way, the entire day spoiled because of the trouble and inconvenience experienced.

Fortunately now-a-days this trouble is eliminated because new ideas prevail with regard to changing tires, in the form of demountable rims. It is no trouble to change a tire now because the system is simple and easy.

Changing filling in Beater rolls resembles to a great extent the changing of tires. Any mill-wright or superintendent knows the hard work and time this job entails. Blow torches, sledge hammers, cursing and long laps of time feature the work. The particular beater whose roll is being refilled is closed down and production decreases.

Now why put up with all of this disagreeableness in connection with the refilling of rolls when the trouble can be eliminated. The Valley Iron Works Company builds a roll which takes this work out of the category of the old detachable rim days. In previous issues of the Beater, cuts of the roll dismantled have been shown together with explanations of how the work is simplified when these rolls are installed.

In spite of the fact that mention has been made of this matter before, we are repeating it again because we believe that a good thing will stand a lot of reiterating. We show, therefor a cut of the roll assembled. Isn't it sturdy looking? Numerous superintendents have made this exclamation on seeing it. The feature of the roll is that it does away with all the disagreeable experience accompanying the changing of the ordinary roll. It is so executed that any or all of the bars can be removed without taking the roll from the tub. All that is necessary to remove one or more bars, is to detach one of the end rings and drive the bar or bars 2 inches endwise. They may then be easily lifted out. The knife is so slotted as to give holes on all four heads instead of on the outside ones only, as in the old type of roll.

New bars for replacement purposes for the Bandless Roll may be obtained at the same price as the old style bars, notwithstanding the additional punching required. The device is winning favor wherever installed as it not only saves time, but makes a difficult, unpleasant job, an easy one to perform.

Now with these facts before you don't you think that the roll is worth investigating? We feel it is and assure you that any questions regarding it will be cheerfully answered upon request. Would you go back to the detachable rims for your car? No. You will not because the present day methods are much more practical. We believe the same applies to the Bandless roll.

JOHNNY, THE SKINNER BOY

(Even the Boss Makes Mistakes Sometime)

JOHNNY Polowitzowski was the eldest son in a family of thirteen and at the mature age of twelve summers had to chip in and help the old man bring both ends within hailing distance of one another. Not that Johnny wanted to. He wasn't built that way. But the twins had to have their tri-daily bottle of chalk and water and besides father's trousers, made over, never lasted longer than Adolph, the sixth in line, and they lived in Wisconsin where the winters are long and cold.

So Johnny accepted a position as skinner boy in a Fox River Valley pulp mill, and started his career punching holes in felts. Every spring he had spring fever and thought of himself slamming out three baggers and fishing for suckers above the dam And when the spring fever season was over he had summer fever and thought of the swimming hole and more three baggers. And in September he had autumn fever and spent most of his time thinking of his pals booting the football around the empty lot. And a little later he had winter fever and thought of the swell ice on the canal. In fact Johnny led a feverish existance that didn't include much thought on the manufacture of pulp.

He grew to consider that day lost that didn't include three holes punched in the felt and the machine put on the hummer at least once. Damaged and uneven stock meant nothing in his young life. He wasn't at the receiving end of the dividend line. And Johnny was not a freak specimen. There were many more just like him.

One day the superintendent came in. Johnny wasn't especially on the job, so the super, an old hand at the game, skinned the roll himself—and punched a hole in the felt. This is the truth. It actually happened. Of course it was a horse on the superintendent, but it set him to thinking.

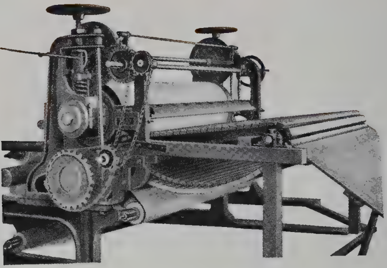
Then he heard of the Hanson Improved Automatic Roll Skinner, and had a couple installed. Johnny couldn't punch a hole in the felt now if he wanted to. All he has to do is to keep the machines running. He is able to look after both wet machines and besides there is no stock to weigh. The automatic skinner looks after that.

Johnny is tickled pink. He still leads his feverish life but gets by with his work five times better than before. His boss kids him now instead of swearing at him as in days of yore.

But Johnny's pleasure is as nothing compared to joy of the superintendent and the stock holders. Johnny is now an asset to them, not a liability. And the automatic skinner paid for itself in less than a year by the saving it made in felts alone.

LIKE FATHER, LIKE SON.

Mr. Jacobs: "Ikey, let me see wot you been learning in school. How much is two and two?
Ikey: "Two and two is seven."
Mr. J.: "That's wrong, Ikey. Two and two is four."
Ikey, smiling: "I knowed it was all the time, father, but I thought you was goin' to Jew me down.



The Hanson Automatic Roll Skinner

THE HANSON IMPROVED
AUTOMATIC ROLL SKINNER

is pictured above. It is a simple in construction, well built and will last a life time, without repair. It does excellent work on ground wood pulp and can be attached to any wet machine of modern design. It saves felts and press rolls, as roll sticks are unnecessary and one boy can handle two wet machines. All that he does is keep the machines running and fold the sheets of stock delivered to the table by the Automatic Skinner. The machine also does away entirely with weighing the bundles. It is adjustable to any desired weight and never skins the roll until the desired amount of stock is accumulated on it, regardless of how heavy or light the stock runs. Moreover, it will tally the bundles it throws out on the table.

The machines are not expensive and are worth many times their cost. It will pay you to investigate. We are the sole manufacturers and will be glad to figure with you on your requirements.

WHY THEY ARE CALLED NIAGARA BEATERS

"WHY are they called Niagara Beaters?" We answered that question many times during the past few months, and we usually find that the query comes from someone who has never seen the beater in action. Those who have watched the machine at work have a clear idea as to the reason for its having been named the "Niagara."

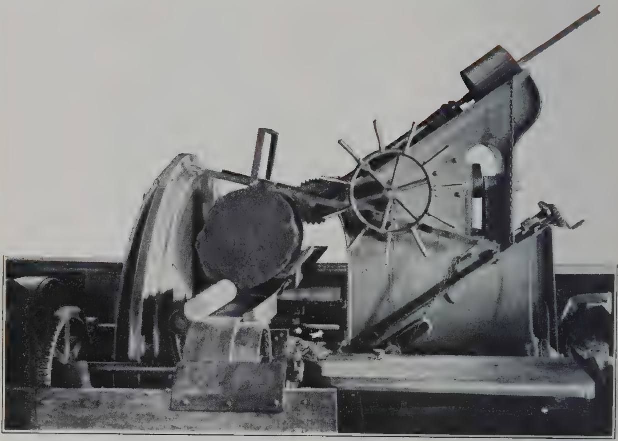
Have you ever looked up the St. Lawrence river towards the rapids at the foot of the falls? The water foams and boils over the rocks at a terrific speed. We were reminded of this when we saw the rush of stock around the back end of the new beater. It is well named the "Niagara". It is hard to describe the speed with which the stock travels as it takes the five foot drop between the back and front of the machine. A mill foreman said the other day, "I wouldn't have believed it possible."

A FLOOD OF PULP WOOD

IT is a novel experience for pulp manufacturers in Wisconsin to be flooded with pulpwood, after the shortage of the past few years. Wood yards throughout the Fox River Valley are filled to capacity and manufacturers have been put to considerable expense because of their inability to unload the cars fast enough. It is estimated that a two years supply is at present on hand and the Pulp Wood Company of Appleton has found it necessary to obtain yard space in Green Bay to store logs, which are still coming in and for which there is no available room in the mill yards.

THE UNION MAN

"Moike was drowned last night."
"Is it true? Couldn't he swim?"
"Yes, but he's a union man. He swam for eight hours, then quit."



An Ideal Barker in operation in the plant of the Interlake Pulp and Paper Co., Appleton, Wis.

REDUCE WOOD LOSSES

A reduction of over 25% in the loss of wood weight during the barking process is the experience of mill owners using the new Ideal Barker. During the last few months two of these machines have been installed in the plant of the Parker-Young Co., Lincoln, N. H., (the second order to be placed by this concern), four at the Combined Locks Paper Co., plant at Combined Locks, Wis., five at the Washington Pulp and Paper Co., mill, Port Angeles, Wash., and three at the plant of the Oregon Pulp and Paper Co., Salem,Oregon.

The machine is handled by one man and is a dry barker; the cuttings can be used for fuel, offering the opportunity of a big saving. The machine is made in two sizes, the six foot barker taking a 2 or 4 ft. length with a 4-32in. diameter; the five foot machine taking a 2 or 4 in. length, 4-18 in. in diameter.

It not only wastes less wood and barks better, but costs less in power expenditure and in labor. The starting and stopping of the cross conveyer or the feeding of wood to the barker, is entirely an automatic process, controlled by a hand wheel. The spur wheels which move the wood can be stopped at any point.

Below is listed a schedule of capacities covering both 5-foot and 6-foot barkers. The figures were not derived from a test run, but an ordinary days run under usual working conditions. Slight reductions were made in the figures, moreover, to allow for any mishaps that might result, which were not met with on the day the trials were made.

On spruce wood, 4 in. to 8 in. in diameter, 20 cords per 10 hrs. 4x4x8 ft.

On spruce wood, 8 in. to 20 in. in diameter, 30 cords per 10 hrs. 4x4x8 ft

On hemlock wood, 4 in. to 8 in. in diameter, 18 cords per 10 hrs. 4x4x8 ft.

On hemlock wood, 18 in. to 32 in. in diameter, 25 cords 4x4x8 ft.

On hemlock wood, 21 in. to 24 in. in diameter, 35 cords per 10 hrs. 4x4x8 ft.

On Hemlock wood, 20 in. to 23 in. in diameter, 38 cords per 10 hrs. 4x4x8 ft.

The waste ranges from 18 per cent to 21 per cent, according to the condition of the wood.

Test figures made under testing conditions, show a still greater efficiency for the "Ideal" Barker attachments. The figures on two tests follow herewith:

TEST OF ONE 72 INCH BARKER EQUIPPED WITH "IDEAL" ATTACHMENT.

Speed of barker disc, 668 R.P.M.
Average size rough wood (over bark), 6 7/16 inches diameter.
Average time to bark one cord, 21½ minutes.
Average number of sticks barked per minute, 12.
Size of rough wood racks, 12 ft. 6 in. by 6 ft. 5 in. by 24 in.
Size of peeled wood racks, 7 ft. 3 in. by 5 ft. 6 in. by 24 in.
Solid measure rough wood racks, 1 cord.
Piled measure rough wood racks, 1¼cords
Solid measure peeled wood racks, ½ cords.

Piled measure peeled wood racks, ⅝ cord.
Test started 7:00 A. M. (Sunday)
Test finished, 11:05 A. M. (Sunday)
Lost time during test, ½ hour.
Net duration of the test, 3 hours 35 minutes.
Capacity of barker per 10 hour day, 27.9 cords.
Power head at time of test, 19.8 feet.
Kind of wood, 24 inch spruce, full bark and green, taken off yard stock pile.

	Solid Measures Bulks, 128 plus 25%	PiledMeasure Bulk, 128 cu. ft. per cord
Amount of rough wood handled	10 cords	12 ½ cords
Amount of wood after barking	7.38 cords	9.22 cords
Total weight of rough wood..........	47,896 lbs.	47,896 lbs.
Total weight of peeled wood	34,969.25 lbs.	34,969.25 lbs.
Total weight 1 cord rough spruce....	4,789. 6 lbs.	3,831.6 lbs.
Total weight 1 cord peeled Spuce......	4,738.38 lbs.	3,792.76 lbs.
Total weight shavings handled.........	12,927 lbs.	12,927 lbs.
Total weight shavings per cord barked	1,292.7 lbs.	1,034.2 lbs.
Total weight shavings per cubic ft......	10.90 lbs.	10.90 lbs.
Cordage lost in process of barking......	26.2 %	26.2%
Weights lost on process of barking ...	26.9 %	26.9%
Moisture evaporated from six samples of Spruce wood.....................	39.8%	

Piled rough wood equals weight of peeled wood plus weight of shavings.

TEST OF ONE 72 INCH DISC BARKER EQUIPPED WITH "IDEAL" ATTACHMENT.

Speed of Barker disc, 656 R.P.M.
Average size of rough wood, 6 $\frac{11}{32}$ inch diameter.
Average number of sticks barked per minute, 13.
Average time taken to bark one cord, piled, 21½ minutes.
Size of rough wood racks, 12 ft. 6 in. by 6 ft. 5 in. inside.
Size of peeled wood racks, 7 ft. 3 inches, by 5 ft. 6 inches inside.
Solid measure rough wood racks, 1 cord.
Piled measure rough wood racks, 1¼ cords.
Solid measure peeled wood racks, ½ cord.
Piled measure peeled wood racks, ⅝ cord.
Tests started 7:10 A. M. (Sunday).
Tests finished 11:40 A. M. (Sunday)
Duration of tests 4 hours 30 minutes.
Capacity barker, 27¾ cords in 10 hours.

Kind of wood, 24 inch spruce, scant bark, from river	Solid Measure Bulk 128 plus 25 per cent	Piled Measure Bulk 128 cu. ft.
Amount of rough wood barked	10 cords	12½ cords.
Amount of wood after barking	8.1 cords	10.1 cords.
Total weights of shavings	11,467 lbs.	11,467 lbs.
Total weights of rough wood handled	51,704 lbs.	51,704 lbs.
Total weights of peeled wood produced	40,237 lbs.	40,237 lbs.
Cordage loss in process of barking	19%	19.2 %
Weights lost in process of barking	22.17%	22.17%
Weights of 1 cord rough spruce	5,170.5 lbs.	4,136.3 lbs.
Weights of shavings from 1 cord	1,146.7 lbs.	917.36 lbs.
Weights of 1 cord peeled spruce	4,967.5 lbs.	3,983.16 lbs.

The results of these tests prove that the seven-knife barker is of greater advantage than the old style four-knife barker, because the knives do not have to set out so far, and therefore waste less wood.

Shipping weights as follows:

Ideal Attachment	**4,500 lbs.**
5 ft. Barker	**4,800 lbs.**
6 ft. Barker	**6,500 lbs.**

PAPER MILLS REDUCE WAGES

MANY paper mills of the Fox River Valley have put through good sized reductions in salaries and wages. Announcement has been made of a reduction of approximately 20% in the wages and salaries of employes of the Thilmany Paper Co., of Kaukauna, affecting every one in the organization. The Kimberly-Clark Co., of Neenah, have announced wage and salary cuts in all of their mills as has also the Appleton Coated Paper Co.

FIFTY-FIFTY

"How is it Sandy", asked a visitor of a Scotch coal merchant, "That you quote the lowest prices in town and make reductions to your friends and yet you make money?"

"Weel, it's this way", was Andy's explanation, in an undertone, "Ye see, I knock off two dollars a ton because a customer is a freen' o' mine, then I knock off two hundred weight a ton because I'm a freen' o' his."

WHAT WE OFFER

©

WE design and build paper making machinery to meet any condition, and can supply standard machinery in any quantity on short notice. Our complete line consists of——

Niagara Beaters
Vesuvius Oxidizing Sulphur Burners
Beating, Washing and Bleaching Engines
Barkers and Barker Attachments
Chippers—Re-Chippers—Chip Screens
Knot Screens (Revolving)
Diaphragm Screens—Felt Washers
Blow-Pits
Cylinder Machines
Deckers (Single and Double)
Stuff Chests (Vertical and Horizontal)
Shredders and Special Washers for Old Paper Stock
Wet Machines and Patent Roll Skinners
Bronze, Semi-Steel, Lead and Iron Castings
Valley Iron Works Co. Centrifugal Pumps
Acid Tanks
P.A.P.A. Rotary Screens

VALLEY IRON WORKS CO.

APPLETON, WISCONSIN

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THE BEATER

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PIONEER MANUFACTURERS

IT IS right to take pride in being progressive; in advancing continually, even if it is along beaten paths. It is right to take a greater pride in being a pioneer; in doing a thing for the first time; not only the first time for yourselves, but for your entire locality. We feel that it is right, therefore, to take pride in the production of the first paper machine ever manufactured in the Fox River Valley; in fact, the first in the State of Wisconsin outside of Beloit.

This machine was shipped early in the year to the H. W. Johns-Manville Company plant at Manville, N. J., and was of the five-cylinder roofing type, making a sheet eighty inches wide, with a capacity of forty tons per day. It has been in operation for some time and is giving excellent satisfaction. As a proof of this, a second machine has been ordered by the Johns-Manville Company, and is now nearing completion.

The making of paper machines meant more to us than the adding of a new number to our line of manufactured products. It meant the construction of a large addition to our plant; the investment of a large sum of money in extra equipment, patterns and raw materials; with all of the risks accompanying such investment.

We would not have taken these risks were we not sure of our product. We believed that the Valley Iron Works Co. paper machines would give maximum service and satisfaction. Valley Iron Works Co. enterprise and service had opened new fields in the past, and we felt confident that they could again. The success which met our efforts, as set forth in this issue of the Beater, shows that this confidence was justified. We are in the paper machine manufacturing game to stay, and will maintain the high standard of quality with which we began.

With a service staff of trained engineers we are in a position to offer exceptional co-operation in the preliminary planning of paper machine equipment and its successful installation after the machines are built. It is our purpose to offer the most complete service obtainable. Advise with our experts regarding your machine plans for the future. It will be well worth your while.

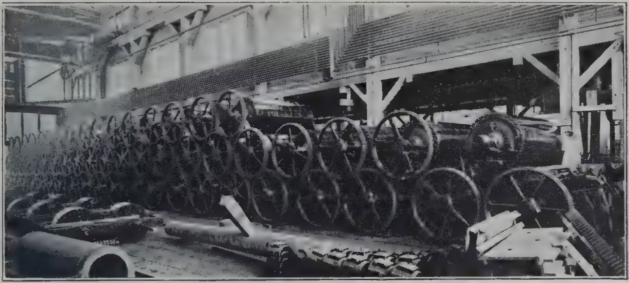
AS QUICK AS OUR BRAND

A big colored trooper, sent into the trenches for the first time, found himself in a very quiet sector. For two days there was absolutely nothing doing. He wanted excitement and wanted it bad, so he jumped up, in plain view of the opposite trench and dared the Germans to shoot. Just then the first shell to come over for days struck nearby, and he was covered with dirt. Rolling back into the trench, he said "Fo' de Lawd Sakes! Dey suah do gib service oveh heah."

A FINE DISTINCTION

Pat: "Moike, phat's the difference bechun tact and politeness?"

Mike: "Well Pat, if yuse go into a bathroom and foind a loidy in the tub and yuse say "Excuse me", and get out, that's politeness. If yuse say "Excuse me, SIR", that's tact."



Paper Machine Under Construction

CONSTRUCTION OF THE FIRST MACHINE

Featuring a New Departure in Paper Machine Drive - the use of Variable Speed Transmissions

THE enlarging of the Valley Iron Works Company plant to make possible the building of paper machines and the construction of the first machine, came as the result of constant urging on the part of paper manufacturers, and the knowledge that Valley Iron Works Company quality could feature a paper machine as readily as it has featured the balance of the equipment which we manufacture.

The first machine manufactured in our plant is of the cylinder type, 80 inch trim. It is 196 feet in length, has five cylinders five primary presses, two main presses and sixty dryers, calendar stack, reel (drum type) and slitters and a two bar, compensating winder. The frame is of an unusual design, in the arrangement of the tier dryer section. It does away with all steam pockets as the sheet is carried through to the calendars. It is of extra heavy construction, yet all parts are readily accessable. Its great strength does away with vibration and insures long life.

The machine was designed to meet every condition resulting from a series of conferences between our engineers and the purchaser, and a complete survey of the situation by our representatives. An analysis of sequence of operation covering the manufacture of asbestos and dry felt papers was made and specifications were drafted, from which the machine was designed, built and installed. A second machine, handled in like manner is now nearing completion.

A NEW PAPER MACHINE DRIVE

Due to the fact that the plant in which our first paper machine was installed has no basement and because the trusses are 40 feet above the floor line of the mill, it was found necessary to depart from the usual practice of driving the machine with belts and pulleys. After much thought and research it was decided to use a battery of variable speed transmissions. The machine itself is driven in six separately controlled sections, which in turn, are so installed as to make a single unit drive controlled for direct speed changes through a master variable speed transmission. This controls smaller machines in machine drive line.

The use of variable speed transmissions as a paper machine drive is a big departure from ordinary custom. After putting the machine through the most severe tests of every kind in an effort to discover whether or not such a drive was practicable, it was found satisfactory and successful under all conditions.

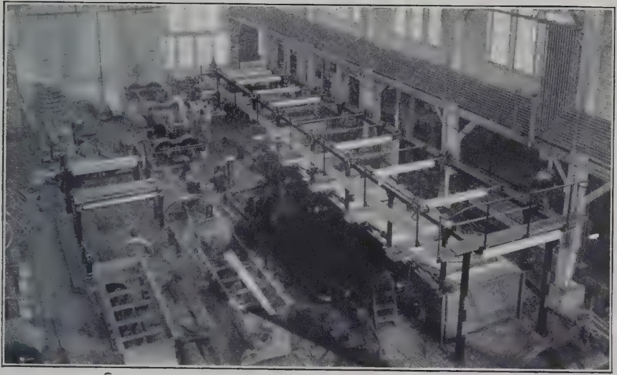
CONSERVATION METHODS

"Rastus, how is it you have given up going to church."

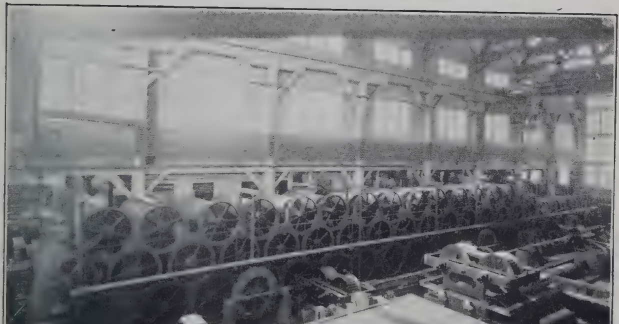
"Well Sah, it's dis way. I likes to take a active paht an' I used to pass de collection basket, but dey's give de job to Brothah Green, who jus' got back from de wah in France."

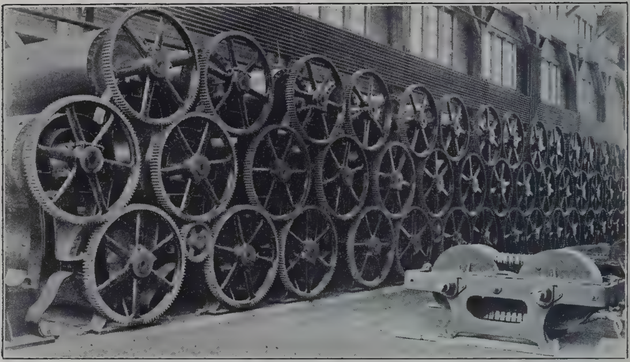
"In recognition of his heroic service, I suppose."

"No Sah, I reckon he got dat job in recognition ob his havin' lost one ob his hands."



Two views of paper machine under process of construction in our plant





Paper Machine Erected in Our Plant

WHAT GOES INTO A MACHINE

A PHILOSOPHER once said that figures don't lie but that liars will figure. Another agrees to prove anything from statistics, and the same statistics at that. The following figures, however, are "thetruththewholetruthandnothingbutthetruth", and prove but two things. Valley Iron Works Company paper machines are substantially built and are models of efficiency.

The total weight of the machine erected in the Johns-Manville plant is 351 tons.

A total of 295 tons of cast iron was used in its construction.

Besides the iron, 5 tons of bronze went into the machine.

Without screens being considered, it is 196 feet in length.

It has a variation in speed of from 4 feet per minute to 185 feet per minute.

When ready to ship 26 cars were required for transporting it to Manville, N. J.

The paper machines turned out in our plant do not differ greatly from others, as far as general design and construction is concerned.

Their excellence lies in the superior quality of the materials used in building them, in careful workmanship, in an exceptional ly heavy construction, and in a number of special features and new devices. These, combined, have made it possible to turn out from 45 to 50 tons of paper per day on the machine installed in the Johns-Manville plant; a piece of equipment designed to produce only 40 tons per day.

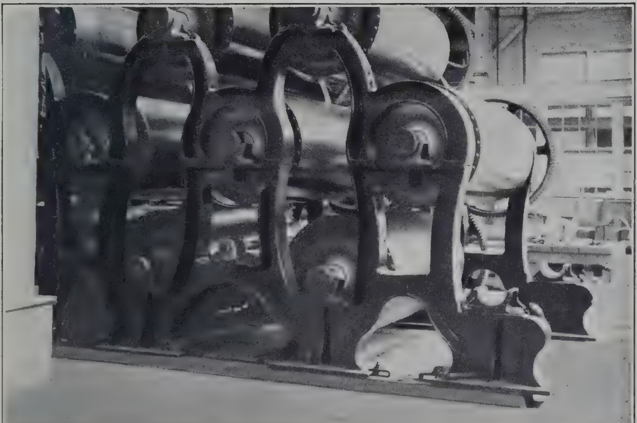
NOW A COMMON CURE

According to a recent newspaper dispatch a drunkard was reformed by an operation which removed a piece of bone pressing on a portion of his brain. There have been a number of other cures perfected lately by the removal of a brass rail which was pressing against the foot.

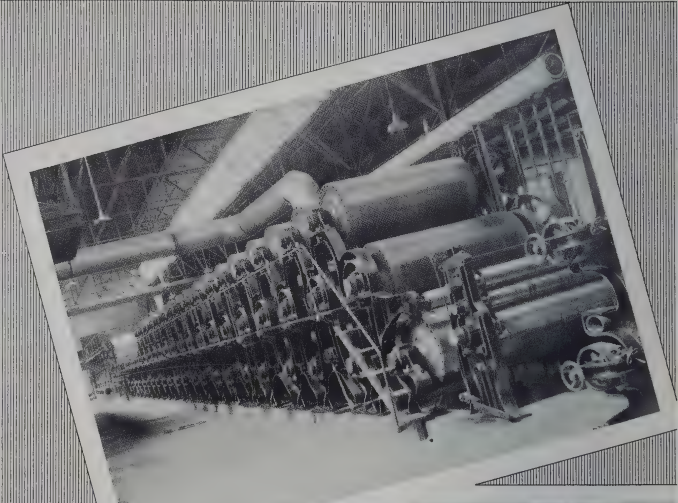
THE H. C. OF L.

The tourist from the East had stopped to change tires in a desolate region of the far south. "I suppose," he remarked to a native onlooker, "that even in these isolated parts the bare necessities of life have risen tremendously in price".

"Ye'r right, stranger", replied the native gloomily, "and it ain't worth drinking when you get it."



View of Frame Section—Note Heavy Frame Construction



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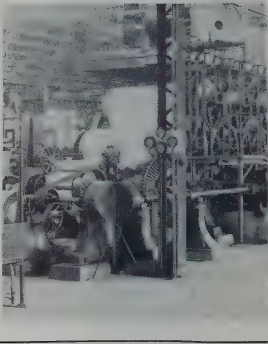
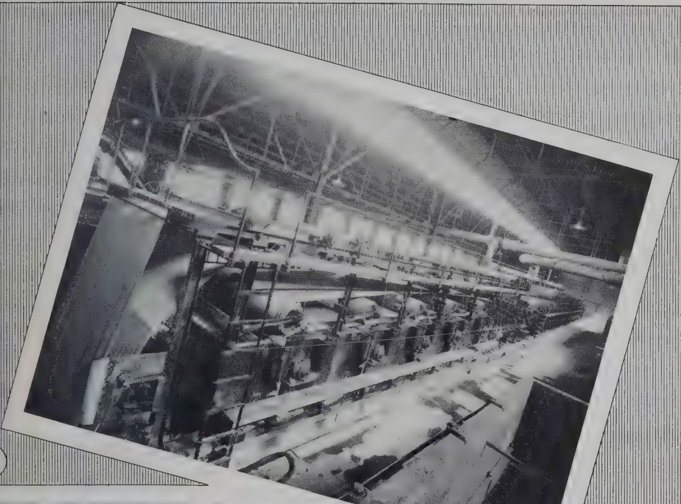


No. 1—View from dry end looking towards wet end.

No. 3—Winders and

THE MACHINE ERECTED AND RUNNI



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end showing drive side.

No. 2—Wet end of machine looking towards winder.

G IN THE JOHNS-MANVILLE PLANT

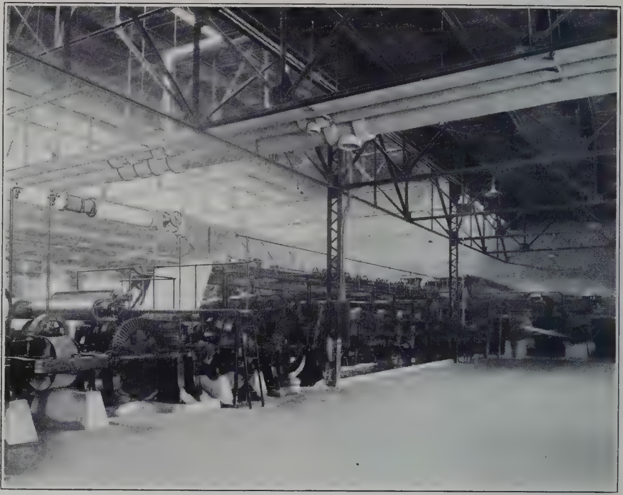


Illustration No. 4—Wet End Drive Side

MACHINE ERECTED AND RUNNING

THE above illustrations show the first Valley Iron Works Company paper machine erected and running in the Johns-Manville Co. plant at Manville, N. J. Picture No. 1 clearly illustrates the design of the dryer frames, giving an idea of their accessibility and great strength. No. 2. pictures the wet end of the machine looking toward the winders. It gives an excellent idea of the general design and shows the entire length installed. Note the arrange ment of the felts and the operating accessories.

Picture No. 3 shows the machine looking from the winder toward the back and brings out clearly the entire drive line, the back running board and the steam connections for the dryer.

Illustration No. 4 pictures the wet end drive side, and shows the arrangement of the screens, fan pumps and drive for the presses which in turn operates felts, both top and bottom, on the wet end.

The machine, as already stated, has a variable speed transmission drive. Five motors totalling 143 horse-power, are used; one of 50 H. P. on the dryer section, calendars, reels and wet end; one 75 H. P. on the fan pumps and on the screens for the wet end; one of 10 H. P. on the winders; (two bar compensating type); one of 5 H. P. on the agitator equipment and felt whipper; and one of 3 H. P. on the felt whipper and rear end for the top felt.

The Machine was Designed to Produce Forty Tons per Day and Forty-Five to Fifty Tons are Being Turned out on It Daily.

Those who have seen it in operation declare that the machine is years ahead of the times. It is giving excellent satisfaction and its success again proves the value of Valley,Iron Works Company quality.

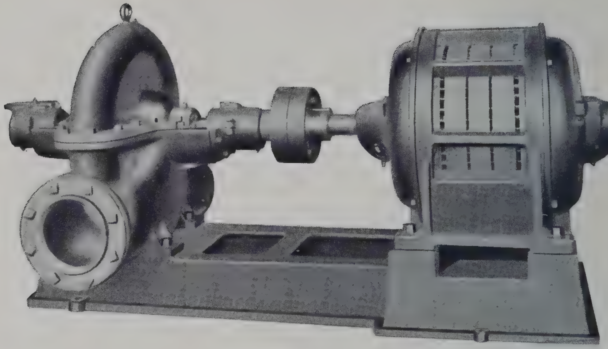
FORETHOUGHT

The best stories told of the Jews are usually told by the Jews themselves, according to Phil Grau of the Milwaukee Chamber of Commerce. As an example he hands out the following:

An old Hebrew was taken ill with smallpox and was confined to an isolation Hospital. He was in a serious condition and the young intern knowing how ill the old gentleman really was, made an effort to cheer him up. The aged man, however seemed to realize his condition and said "Doctor, I don't think I vill get vell. Vill you get for me a Catholic Priest?" "What do you want with a priest, Isaac?" replied the doctor. "I should think you'd want a rabbi." "Father Abraham, No!" replied Isaac. "Do you tink I vant to give the disease to the good Rabbi?"

DEDICATED TO LITTLE BROTHERS

John asked Mary to go for a walk.
    He said they'd gather flowers.
Mary's little brother came tagging along,
And so— — — they gathered flowers.



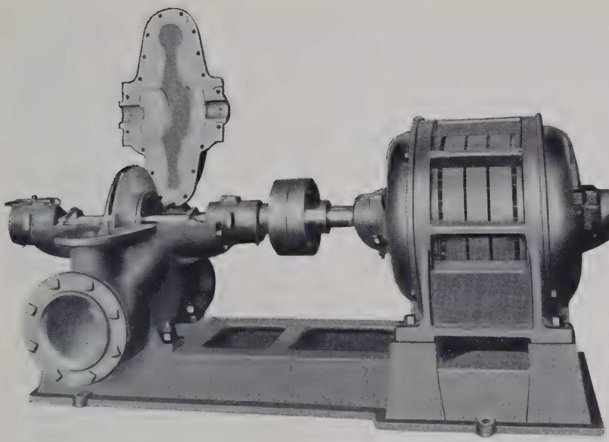
THESE CENTRIFUGAL PUMPS ELIMINATE POWER LOSSES

THE present high cost of power makes the power requirements of a centrifugal pump its most important feature. Eliminating power losses in the operation of pumps has been a goal toward which pump manufacturers have worked for years. The best efforts of our engineers have been put forth in trying to reach this goal, and to combine real accuracy with economy of operation. Their success has won friends everywhere for Valley Iron Works Company pumps.

A pump using ten to twenty per cent more power than it should will eat up several times its worth in less than a year. Such a loss of power is only too common in the experience of pulp and paper manufacturers. We are so sure that we can prevent this power loss for you and besides give you the limit in accuracy, that we fully guarantee the performance of all Valley Iron Works Company pumps.

WHY WE GUARANTEE OUR PUMPS

We now have at our disposal one of the best informed pump designers in the country. He has had years of experience and will assist in designing all centrifugal pumps turned out in our plant.



We have, besides, a complete pump-testing department, with new equipment recently installed. The pumps are designed and built by experts and are tested in our plant under the same conditions which they will be forced to meet in actual operation. A pump must be right before we permit it to be shipped.

A number of important changes have recently been made in the general design of our pumps. Special attention has been given to insuring the long life of the bearings, and by increasing the shaft size, an additional factor of safety has been attained.

A FEW POINTS OF EXCELLENCE

The illustrations accompanying this article, show our Class A, double-suction, horizontal split-case centrifugal pumps. They are suitable for general work, but are designed especially for use in paper and pulp mills.

A leading feature of the pump is the impeller. It has been said that a pump is no better than its impeller, so particular attention has been paid to this important part. It has been our aim to design one which would produce more pressure with a given peripheral speed than other makes. Installations of the new Valley Iron Works Company pumps in all cases prove that our purpose has been accomplished. Each pump is fitted with the most efficient design of inclosed impellers for water and acid, and a special design of open impeller is made for stock. Our impeller does away with shock and eddies, and eliminates all back pressure, thus saving materially on power. The impellers are, of course, balanced with the utmost care and their hand finish does away with friction.

Sleeve bearings inclosed in a housing are another feature of the pump and they are so designed as to hold the impeller against all end thrusts and to eliminate vibration. Should the bearings become damaged as the result of neglect, they may easily be removed and rebabbited. An especially deep oil chamber makes oiling more than once a week unnecessary.

The horizontal split feature is exceedingly valuable, as it makes it possible to easily open the pump for examination without disturbing its alignment or interfering with the pipes. The double suction equalizes distribution of water on both sides of the impeller, counteracts thrust and assures better balance.

THE PROPER WAY TO BUY A PUMP

The right way to purchase a centrifugal pump is to buy it to fit the conditions under which it is to operate. A ready-made pump, "fixed over" to partially meet requirements will prove unsatisfactory, as it is practically impossible to adapt a stock pump to meet all conditions. Without exception, they are power wasters and are inefficient. A "tailor made" pump will save several times its cost in power alone.

Pumps similar to those shown in the illustrations are made to order in sizes ranging from 2½ inches to 15 inches; of a capacity of 100 gallons per minute up. We can build pumps in any capacity from 50 gallons per minute up to five or ten thousand gallons, constructing them to fit your requirements exactly and guaranteeing their performance. We are now making a specialty of stage pumps for high pressures, which are models of economy.

If you are interested in pumps give us an opportunity of demonstrating to you that we have not painted too glowing a picture of our product. On the opposite page is a data sheet. Fill in the blank spaces, send it to us and let us use it as a basis for sending you full information on a Valley Iron Works Company centrifugal pump, built to solve your problem; "tailor made" to exactly fit your requirements.

SEND US THIS DATA SHEET TODAY

Note:—If the second or third questions cannot be answered, where pumps are now doing the work required, place a vacuum gauge on the suction pipe close to the pump and a pressure gauge on the discharge close to the pump and give us the readings, together with the distance between the level of the gauges; these with correct answers to 4 and 5. We can then arrive at the data sufficiently close. Care must be taken to use gauges that are reliable—then if more water is desired we can easily make provision to get it. If the installation is a new one, the capacity must be stated and the actual head given; then the size of the pipes can be designed to fit the capacity economically.

1. Number of pumps of each capacity required..........................

2. Capacity of each size in gallons per minute, if known..................

....

3. Total head, including suction lift and discharge pressure, and total pipe losses in both suction and discharge pipe lines..............................

....

4. Length and size of suction pipe, number and kind of elbows, and all valves used in the suction line, and the actual suction lift..........................

....

5. Length and size of discharge pipe, with number and type of all elbows and valves used, also actual discharge head......................................

....

6. Type of pump, whether horizontal or vertical..........................

7. Nature of liquid to be pumped; cold or hot; clear or gritty; fresh or salt; acid or alkaline; pulp stock or other solids...................................

....

8. If pulp stock, state percentage of density, or whether it has been screened or may contain knots or slivers or other materials.........................

....

9. If acids, state kind and specific gravity................................

10. If belt driven, give kind of power, and diameter and speed of drive pulley

....

11. If motor driven, state current used; if direct give voltage; if alternating, give voltage, phase and number of cycles..................................

....

12. State kind of service, whether continuous or intermittent................

....

A COMPLETE LINE OF PAPER MILL MACHINERY

©

- Niagara Beaters
- Vesuvius Oxidizing Sulphur Burners
- Beating, Washing and Bleaching Engines
- Barkers and Barker Attachments
- Chippers—Re-Chippers—
- Knot Screens (Revolving)
- Diaphragm Screens—Felt Washers
- Blow-Pits
- Cylinder Machines
- Deckers (Single and Double)
- Stuff Chests (Vertical and Horizontal)
- Shredders and Special Washers for Old Paper Stock
- Wet Machines and Patent Roll Skinners
- Bronze, Semi-Steel, Lead and Iron Castings
- Valley Iron Works Co. Centrifugal Pumps
- Acid Tanks

P. A. P. A. Rotary Screens

VALLEY IRON WORKS CO.
APPLETON, WISCONSIN

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The BEATER

ARMISTICE DAY NUMBER

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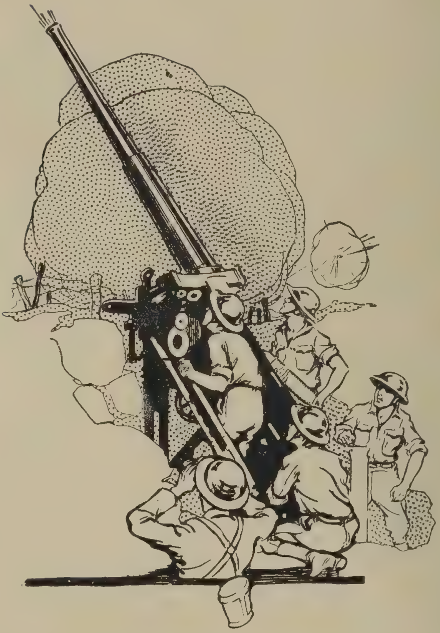
MAR 7 1922

The
BEATER

Armistice Day Number

Published by the
VALLEY IRON WORKS CO.
APPLETON, WISCONSIN



Armistice Day

NOVEMBER 11, 1918

ON this day three years ago the greatest conflict in the history of mankind came to an end. Vaster and more terrible than any other war, its causes and its tremendous after effects more deeply concerned the structure of the world's civilization.

Century old political and economic organizations were overthrown.

Huge empires crumbled and with these world wide national changes, came also a tremendous mental change.

Many years will pass before historians will be able to know and analyze the full scope of these far reaching modifications. There can be no question, however, but what, in the aggregate, they will be for the benefit of mankind.

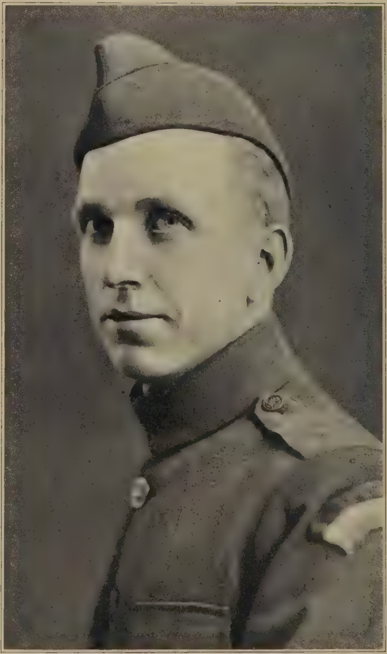
Democracy as expressed by our own republic; equality, justice, liberty; the ideals on which our nation was founded, are now within the grasp of a large part of the world's peoples. There is an ever growing number to whom these ideals are becoming actualities.

The great Armistice celebration at Washington, in spirit a repetiton of the services held at the end of our Civil war; the honoring of the unknown dead, is the natural result of our national ideals. Similar services held recently by European nations are more significant. Nations which heretofore idolized military rulers and leaders, have for the first time honored the common soldier, an indication of the spreading spirit of democracy. The present disarmament conference is another indication if this change in world thought. If the conference accomplishes what every true, liberty loving American desires a great step will have been taken toward world wide democracy, but if it comes now or a few years from now, the democratization of the world is not the distant, impractical dream that it was before the great war and its conclusion.

It is right and fitting that this great forward step should be celebrated each year and that the men who made it possible should be honored. Not only those who made the great sacrifice for the cause, but those who for the rest of their lives will bear the marks of their service and those who willingly offered themselves and were constantly in danger of being killed or crippled, should be honored as well. It is not hard to conceive of November 11th becoming a world wide day of celebration. It should be made one of our national holidays and should be properly observed each year.

We are making this issue of the Beater an Armistice day number. We are doing it not only as an observance of the day in its larger aspect, but to specifically honor those in our own organization who saw service during the great war.

The Beater this month is more of an employees magazine than a house organ advertising Valley Iron Works Company products. We are never-the-less sending you a copy of the issue because we are proud of these men and because we feel that, as a friend of the Valley Iron Works Company, you will be interested in knowing something regarding the personel of our organization.



SGT. JOHN HANTSCHEL

Who represented the State of Wisconsin at the Armistice Day Services at Washington.

Representing Wisconsin

Picked from a long list of Wisconsin heroes of the World War, Sergeant John Hantschel, now a member of the Valley Iron Works Company clerical force, was chosen by the National Commander of the American Legion to represent the State of Wisconsin at the public funeral held in Washington November 11th, in honor of the unknown soldier dead.

John Hantschel enlisted in 1911 with the Appleton Company, of the Wisconsin National Guards. He served two enlistments and was with the Appleton organization on the Mexican border. At the opening of the World War he re-enlisted and embarked for France on Oct. 17th, 1917, with Co. A, 150th Machine Gun Battalion (Rainbow Division). His rank was that of sergeant.

He fought through the terrible battles in the Lorraine sector where the 42nd division repulsed the Germans. This action continued for 110 days and Hantschel fought through the entire period without a wound. Following this he went into the Champagne sector where some of the worst fighting of the war took place. Here he showed repeated gallantry in action with the men who held outpost positions. It was the fifth great German offensive where mass attacks were attempted and where the Germans were so close and in such numbers that the fighting, for a great part, was hand to hand, with bayonets and with the butts of guns. He emerged from this action unscathed and was transferred to the Chateau Thierry sector, where the Rainbow Division made itself famous. While leading a squad across the Orcq River in an endeavor to locate the enemy's position, he found the Germans much closer than had been anticipated. They opened fire, scattering his forces, killing and wounding several of his men. Hantschel himself was one of those who were hit. His right leg was shot away. For 24 hours, until a lull in the battle and darkness made it possible for his comrades to carry him to safety, he lay on the field with only the first aid that could be given him by the field medical corps. Only a spark of life remained when he reached the hospital, but owing to a rugged constitution he recovered.

Since his release from the army he has been employed as one of the clerical force of the Valley Iron Works Company. The honor recently conferred upon him is well deserved. As further proof of the regard which his former comrades hold for him, over 500 of them escorted him to the train which was to carry him to Washington, and gave him an enthusiastic send off.

H. B. LITTLE

H. B. Little, cost accountant for the Valley Iron Works Company was one of the fighting Marines during the war. He entered service in April 1917, at the University of Wisconsin. On July 13th of the same year, he enlisted with the Marine corps at St. Paul. He served with the 8th Regiment of the marines until the spring of 1918, spending part of the time at Philadelphia and the balance of the period in ports on the Gulf of Mexico. Early in the spring of 1918 he sailed for France, and upon his arrival there was assigned to the Regimental Machine Gun Co., 56th Marines, Second Division, as gunner. After service in the training area, he took part in his first battle at Belleau Woods, July 1st, 1918. Until Aug. 15th, he was assigned to the Marbache sector, and on Sept. 12th, took part in the St. Mihiel drive. He went from there to the Champagne sector, on Sept. 28th. During the action in this locality, while cleaning up a German machine gun nest he was severely wounded, being shot through the legs and palms of both hands. With only first aid, he was forced to wait several hours before proper medical attention could be given him. During the remainder of the war his time was spent in various hospitals in France and the United States. Due to the severity of his wounds it was necessary for him to undergo one operation in France and three in the hospitals in this country. Because of the time required for this treatment he was not released until August 16, 1919, receiving his medical discharge from the Great Lakes Naval Training hospital and his discharge from the Marines at their Chicago headquarters Since his release he has been cost accountant at the Valley Iron Works Co.

R. A. PETERSON

R. A. Peterson, assistant treasurer of the Valley Iron Works Company, enlisted June 1918 in the Coast Artillery Corps and was assigned to Fort Howard Coast Defense at Baltimore as a member of the 5th company. After three months of intensive training he was transferred to the 7th Anti-Air Craft Battalion and sailed for France in October, 1918, as a sergeant of Battery B of this organization.

Arriving in France he was assigned to the 7th Air-Craft sector of the A. E. F., and had been moved up to a training area when the war ended. He left France in February 1919, and received his discharge at Camp Grant.

W. A. HOMES

W. A. Homes, purchasing agent of the Valley Iron Works Co., entered the service at Wheaton, Illinois, on Sept. 19th, 1917, and was assigned to Company C, 342nd Infantry at Camp Grant. Here he received active infantry training until with 25 others he was transferred to the Engineering Corp at Large. Transferred from Camp Grant to Camp Merritt, these men were all assigned to the Transportation Corps and left the United States for France April 3rd, 1918.

They did not arrive in France until May 9th, due to a collision which caused their return to Hoboken, New Jersey. They disembarked at St. Nazaire and were transferred to the 33rd Artillery Camp at Anger. There Homes was assigned to the 364th Engineers, Director General of Transportation at Tour.

On August 29th, he was transferred to the Railroad Transportation Officers School at the 16th Engineers Camp at Anger, for intensive training and in two weeks was assigned to R. T. O. of the Le Mans division serving at Lamaus, Messac, Rennes, Laval, Nayenne, and Tour.

On August 9th, 1919 he sailed for home and was discharged at Camp Grant on August 26th.

E. B. MORSE

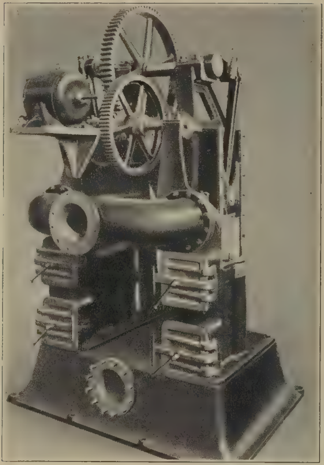
E. B. Morse, one of the Valley Iron Works Company engineering department, enlisted June 10th, 1918 in the United States Navy. After a period of training at Pelham Bay and the United States Navy Steam Engineering School at Hoboken, he was awarded a commission and assigned to the U. S. S. Hatteras, where he served for three months.

Upon his return from Europe he was assigned to shore duty for ten weeks and after this period was transferred to sea duty on the U. S. S. Westwood for another three months. He was released from active duty on June 27th, 1919.

M. A. THOMAS

M. A. Thomas, a member of the Valley Iron Works Company Engineering Department, served in the Student Army Training Corps, enlisted early in October 1918 and served until the Corps training was discontinued two months after the close of the war. He was in training at Lawrence College, Appleton, Wis.

The above men make up a majority of the Valley Iron Works Company office force. There are many more ex-service men employed in the Valley Iron Works plant, but space does not permit the individual mention of all of them. They are equally entitled to praise and honor and we wish to express to them through the Beater, our keen appreciation of what they underwent and accomplished during the great war.



Power Saving Stuff Pumps

Under present conditions a machine that makes possible the saving of power, all other things being equal, is the best machine for your purpose. When other important advantages are combined with power saving the machine is obviously the one best bet. Valley Iron Works Company Stuff Pumps, both Duplex and Triplex types, could be called machines of this class. Their power requirements are small. A sixty ton pump needs only 15 H. P. a 25 ton pump, 7¾ H. P.

Moreover, our Stuff Pumps are arranged for either direct motor drive or belt drive. They have large stock chambers permitting unrestricted flow of stock. These pumps have an exceptionally long stroke, thereby eliminating wear on the bearings. The construction is such that they are very accessible and it is an easy matter to change the balls or clean out the stock chamber The ball chambers are equipped with large doors for this purpose.

A Niagara Beater Installation

Niagara Beaters

NIAGARA Beaters continue to demonstrate their worth in various installations throughout the country. It has been our pleasant experience to receive words of praise and enthusiasm from mills operating the beater on kraft, bond, news, book, board, writing, etc., from the higher executive down to the beater men who do the actual work.

It is particularly significant, we believe, that the workmen in mills are taking such an interest in the beater, for it is a well known fact that paper makers have distinct likes and dislikes regarding the equipment which they operate.

One mill owner after making a trip of inspection through various mills in this vicinity where Niagaras are installed stated that the actual results obtained in the way of power savings, floor space saved, quality of paper and production obtained, were very significant. The thing that impressed him most, was the unification of sentiment for the beater as expressed both by the workmen and executives. To quote his words:—"That beater certainly makes boosters of everybody and that's what we want in our mills." It is not necessary to say that he ordered an engine.

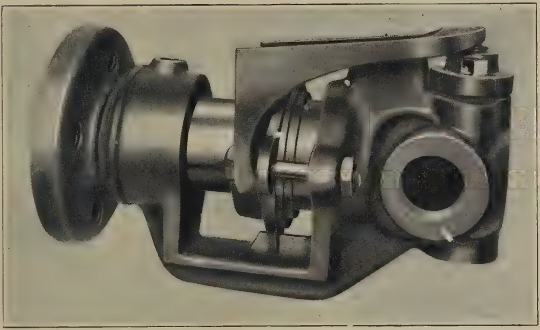
Another executive of one of the largest mills in the country after making an inspection of a mill where four Niagaras are installed, states that it was the finest installation of a beating equipment he had ever seen and that the results obtained were remarkable.

Speaking about results, recalls a letter received from a large Michigan mill, which went on to state that "Eight beaters have been replaced by three Niagaras, as a consequence of which, we were able to divert nine men from our beater room and place them elsewhere in the mill. Our saving in wages alone in this department because of this shift, totaled approximately twelve thousand dollars a year. Quite a saving we believe you will agree with us." But what is being accomplished here, is also being accomplished to a more or less degree in all mills where the Niagara is installed. The Niagara has demonstrated beyond all doubt, its superiority to any beating engine on the market, and the question which confronts you, Mr. Paper Manufacturer is, how long can you afford to be without it.

✣ ✣ ✣ ✣

Buy Christmas Seals

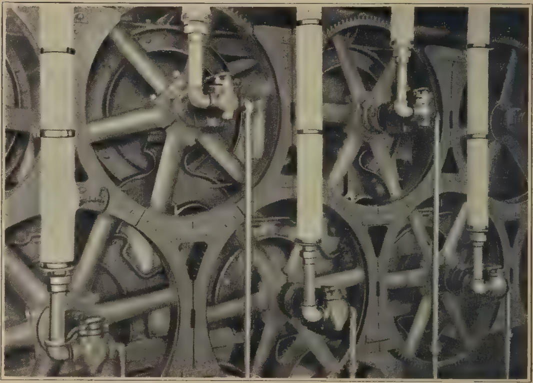
The annual campaign for the sale of Christmas seals has just opened in Wisconsin. The seal as pictured here, is most attractive in design and shows on its face, the cause which will be benefited by the money raised through its sale. A few years ago tuberculosis was considered an almost incurable plague. It is rapidly being placed on a par with small pox and some of the other old time diseases as curable and preventable. This is, in a great part, due to the activities of such organizations as the Wisconsin Anti-Tuberculosis Society. It deserves the support of every one. Help it along by purchasing Christmas seals. Use them on all mail from now until the opening of the new year.



The New Allen Steam Joint

A New Steam Fit for Dryers

New pieces of paper mill equipment possessing exceptional merit are being constantly added to the Valley Iron Works Company line. The last to be added to our list is the Allen Steam Joint, a new steam fit for dryers which, when installed, will cut power requirements on a train of dryers, lower than ever before. Allen Steam Joints differ from the ordinary steam fit in several particulars. A tension regulator which governs the tension on the metal joint in such a manner as to practically remove all friction is one of these features. The joint remains the same regardless of the changes of steam pressure in the dryers, no tightening or loosening of bolts or springs being necessary to suit the high or low pressure of steam. When once adjusted Allen Steam Joints take care of themselves. The majority of the steam fits on the market today allow for the expansion and contraction or the irregularity of piping by providing for an oscilating movement in the joint. This movement tends to throw the siphon pipes out of position, causing them to press against the inner side of the dryer head of the journal, to which they extend. As a result the pipe is frequently broken at its connection to the outer filling, or a hole is worn in

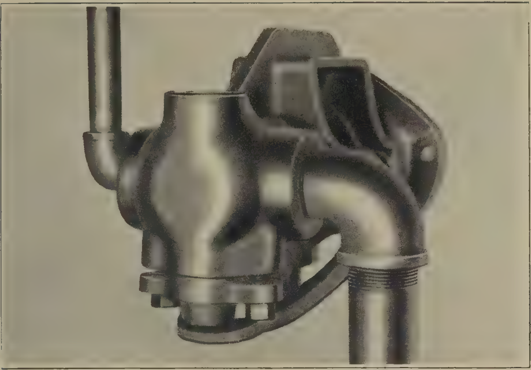


Allen Steam Joints Installed on Machine

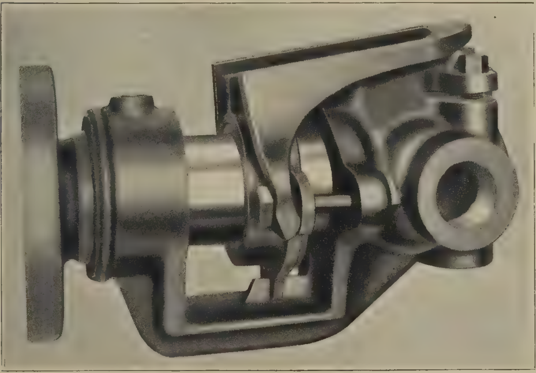
the pipe at the joint where it presses against the dryer head. The siphon is thus destroyed and allows the dryer to remain filled with water.

The Allen joint prevents these troubles by means of an "alignment bearing", which protects the siphon pipe by keeping it always centered in line with the dryer. This bearing is so constructed that, should the dryer to which the joint is connected rise or change its position from any cause, the joint head, (which is supported by a sleeve or journal extension bolted to the end of the dryer journal) will shift in the same manner as does the dryer. The siphon pump which is connected by pipe threads to the joint head, shifts in the same manner, but is held central in line with the dryer, by the alignment bearing. The alignment bearing is rigidly connected to the joint head and has a bearing on the sleeve which supports the joint head.

Allen Steam Joints properly fitted to dryers and with proper pipe connections, will eliminate all siphon pipe troubles, will save in power and do not require the constant attention and adjustments which the others demand. The illustrations herewith show to advantage the steam joint in detail and an installation completed. A letter will bring to you any information which you may desire regarding this new departure in steam fits.



Allen Steam Joint showing Siphon and Steam Pipe Arrangement



Top View Allen Steam Joint

Watch for the Next Number of the Beater

It will tell in detail of the new Henderson Grinder Regulator a machine which helps remove the human element. Used on grinders, it automatically regulates the amount of power according to the grinder's requirements. Small and compact, it includes a number of excellent features found on no other regulator and is much lower in price.

WATCH FOR FULL DATA REGARDING THE NEW HENDERSON GRINDER REGULATOR

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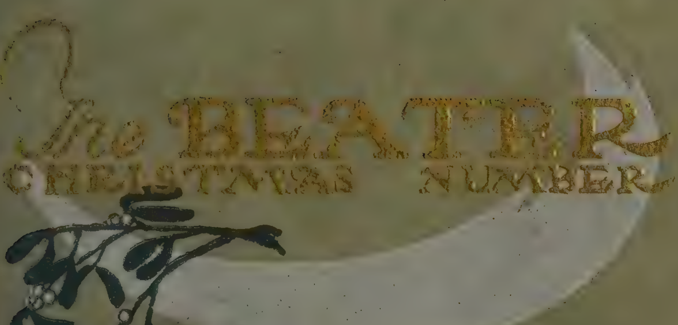
1920

The BEATER
CHRISTMAS NUMBER



The BEATER

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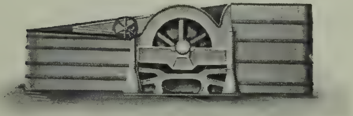
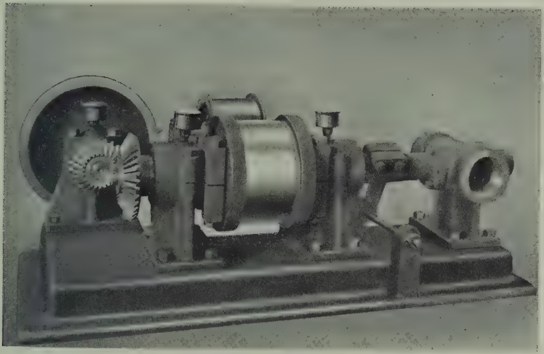


Published by the
VALLEY IRON WORKS CO.
Appleton, Wisconsin

Our Greeting to You

THERE is one wish coming at this time, year in, year out, century after century, that never grows old. It is this age old, ever new, wish that we hold for you. May your Christmas be a happy one and may the New Year bring to you much more of the same happiness, and real posperity.

This holiday season finds us all nearer a real happiness and prosperity than we have been for a long time. We have felt the pinch of the reconstruction period, but with the gradually improving conditions, better times are drawing near. With the opening of the new year we have before us the promise of the returning business normalcy for which we have all been striving. What will mean still more to all of us is not the bettering of conditions in our nation alone, but the increase in prosperity throughout the entire world. What international harmony and disarmament will mean in our trade relations with foreign powers cannot be accurately predicted, but there is no question but that a tremendous increase in trade will result. More important than the prospect of future commercial relationship is the prospect of universal goodwill, the first thought that comes to us during this time of celebrating the birth of the great Prince of Peace.



The Henderson Grinder Regulator

More and Better Pulp

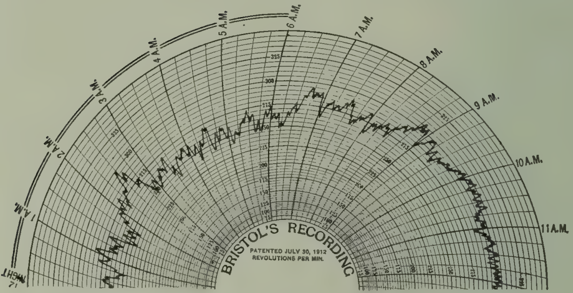
TO increase production and to make a better product without increasing costs is the aim of every pulp manufacturer. This may be done by the use of the Henderson Grinder Regulator. It increases the production of pulp and increases the percentage of No. 1 pulp, thus resulting in a small percentage of screenings.

The accompanying speed charts show graphically what the Henderson Grinder Regulator will do towards keeping the speed of the machines uniform. The chart showing the results obtained before the installation of the regulator depicts, not only a big variation in speed but the accompanying variation in the product which is unavoidable. The uniformity of speed obtained after the installation of Henderson Grinder Regulators means also a more uniform product.

Another important feature of the Henderon Grinder Regulator is the fact that it eliminates a great many of the repairs ordinarily necessary by cutting down the stone breakage. It also obtains the greatest efficiency out of water wheels and operates them at a more uniform load, an exceedingly important consideration.

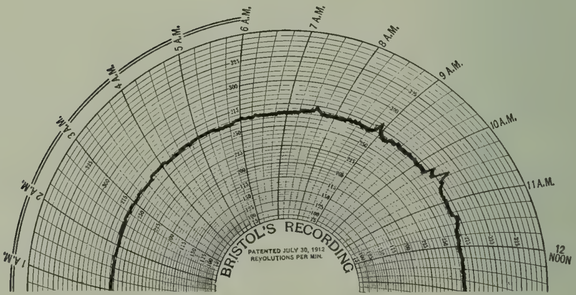
The charts are also valuable as they give an absolute check both on the efficiency of the machine and of the grinder man. Henderson Grinder Regulators are unconditionally guaranteed and pay for themselves in a very few weeks.

Chart No. 1



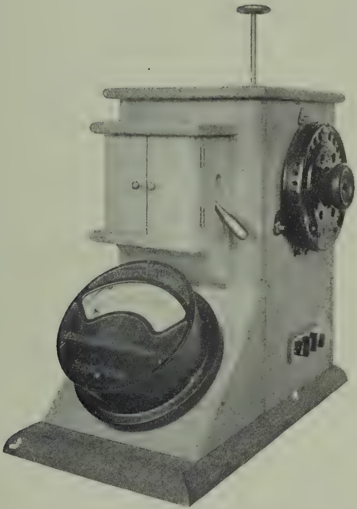
A Chart showing speed obtained on Grinder before the installation of a Henderson Grinder Regulator

Chart No. 2



A Chart showing speed on the same machine after a Henderson Grinder Regulator had been installed

The Valley Iron Works Company Unconditionally Guarantees Every Henderson Grinder Regulator



The Valley Size Tester

How to Quickly and Accurately Test the Size in Paper

THE degree of size of paper has always been very difficult to measure. We talk glibly of basis weight and pop test, because they are terms which we have instruments to measure. Everybody likes numbers because they are explicit. When we say a paper is 16 lb. folio or has a pop test of 25 we understand perfectly what is meant, because the unit of measure is standard and universal. But when we talked size test, we have hitherto had no such test measure.

The Valley Size Tester was evolved to fill this void. It is a machine to quickly, simply, and accurately give a measure of the sizing quality of the paper. It gets away from classifying paper as slack sized, hard sized, or very hard sized and substitutes a definite number.

Sizing is one of the most important problems confronting both manufacturer and converter of paper. It is important to the printer, it is important to the wallpaper maker; it is important to the waxer; it is im-

This shows the tester in position in a testing station of a large paper manufacturer

portant to the pail maker; in fact, wherever paper is used the printer or converter is deeply concerned in the sizing. The printer or converter has had difficulty specifying just what he wanted and the manufacturer has had difficulty making just what was desired because of the lack of a uniform standard of measure.

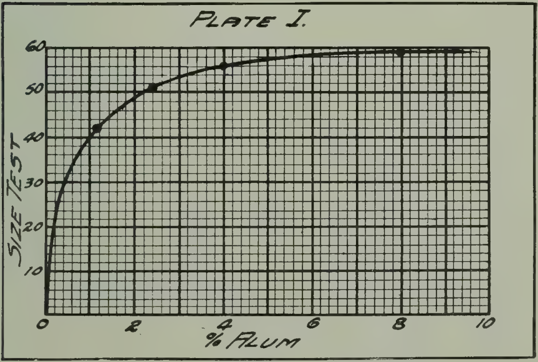
The practical application of the principal used in the Valley Size Tester is due to the efforts of H. G. Boone and C. A. Fourness, chemists with the Kimberly-Clark Company, and during three years of steady use the instrument has been developed, through actual experience, to its present state.

The principal of the Valley Size Tester is as follows. The paper to be tested is clamped between the two halves of a cell, each half of which contains a circular recess with a platinum electrode at the back. With the paper clamped in position the cell is separated into two compartments. The two electrodes are connected in series with an ammeter and a source of current. A solution which will conduct electricity is then admitted simultaneously into the two cell halves. The paper while dry acts as an insulator to prevent the current flowing between the two electrodes, but as it becomes wet its resistance falls, allowing the current to increase until it is entirely saturated, when it has no resistance. The harder the sizing is in this paper, the longer it takes for the paper to become saturated, so that the full current will pass through. The time in seconds for the current to rise to its full intensity (which is a definite value) is the size test.

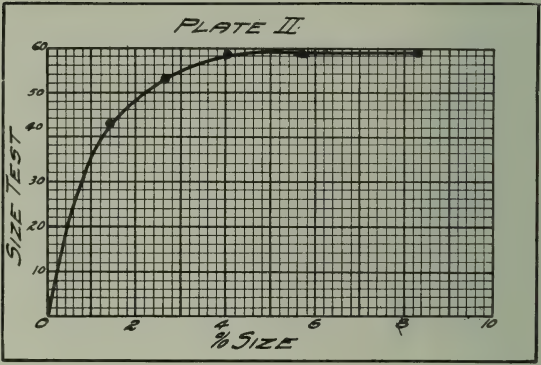
By three years of continuous service in the testing stations of one of the largest paper manufacturers of this country where all grades of paper are tested, the Valley Size Tester has demonstrated its ability to perform an average of five tests hourly, 24 hours per day. In fact, it is an instrument not only capable of making tests accurate and delicate enough for the most exacting research work in the hands of a skilled chemist, but can perform just as accurtely in the hands of a novice. It is as handy as a basis weight scale.

With the Valley Size Tester it is very easy for the manufacturer to keep the sizing constant during a run and from run to run. The following curves show how the sizing varies with the percent of size, the percent of alum and with the beating of pulp. They show that after the first percent of size the additional increments in size added, produce small increments in the sizing of paper. They show how size and alum can easily be wasted and size alone will pay for the size tester in a short time. The curves shown herewith were all obtained with the size tester and show that it is not only an aid to operation, but also makes possible research on sizing. Such research has been handicapped greatly in the past for the want of a standard testing method.

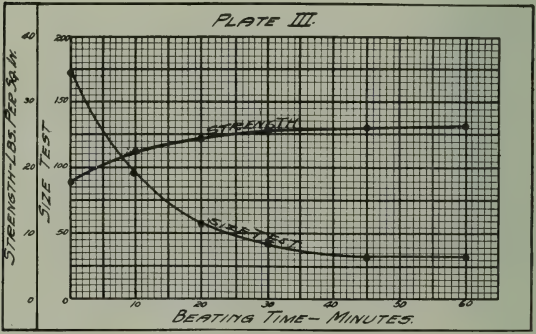
What the Valley Tester Shows



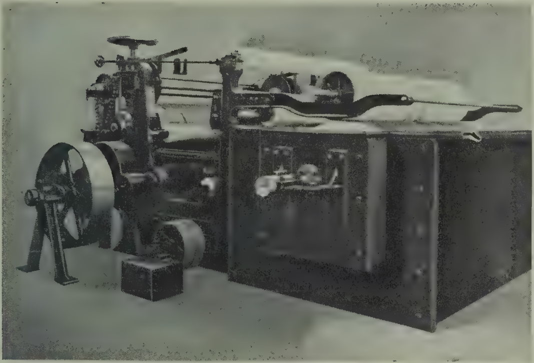
This curve shows how, with a given percent of size, the sizing increases as alum is added until a maximum is reached. It demonstrates that it is useless to add more than enough alum to fully precipitate the size. This ratio varies with different stocks, water, clay, etc.



This curve shows how the size test varies with an increase in size in the paper. The ratio of alum to size being maintained constant. Note that each additional increment of size produces a smaller increment in sizing and that it is a waste of size to add more than 3 or 4%. This amount varies slightly with the kind of pulp being used, its treatment, the water used, etc.



This curve shows how strength increases and the size test falls as the pulp is beaten, the percent of size and alum being kept constant. This is very interesting because it demonstrates why it is so difficult to size beaten pulp.



THE VALLEY WET MACHINE

Side elevation showing construction of vat and frames. Note large overhanging bearing on outside of vat to support cylinder mould

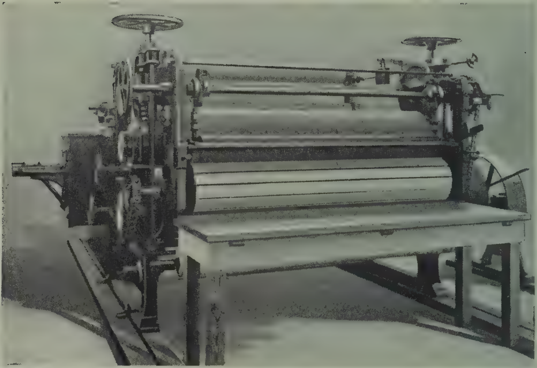
The Valley Wet Machine

—heavier and stronger than any other wet machine

"AWAY with the Wiggle and Wabble", was our motto, when we put the Improved Valley Wet Machine on the market. Most wet machines up to this time had been of light construction, and as a consequence, troubles occurred soon after they had been in operation. The vats leaked; the bearings were twisted out of alignment; the felt rolls gave trouble, and production suffered. Therefore, when putting our machine on the market, our aim was to eliminate these troubles, if possible. Realizing that if we could minimize vibration and shakiness, that a good deal of the trouble experienced with the ordinary machine, could be eliminated, we designed a heavy machine of great strength.

Particular attention is given the design of the frames and housings which support the press rolls for the purpose of insuring at these vital points the necessary strength to withstand any shock which is brought to bear on them.

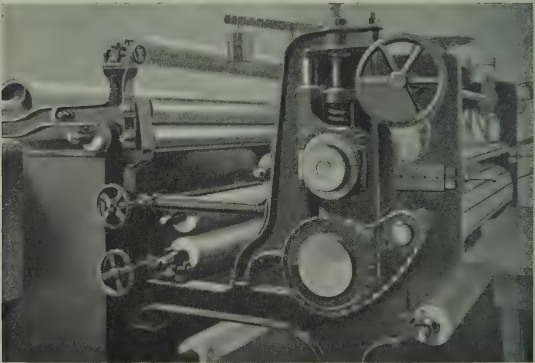
The felt roll bearings are self-aligning—a very important feature and are set in adjustable boxes. So throughout the iron work of the machine, all parts whether large or small, have been given careful consideration in their construction.



Front elevation Valley Wet Machine showing automatic roll skinner

The same thoroughness prevails in the building of the vat. It is constructed of 3'' cypress tongued and tied together with iron rods and is white leaded inside, thereby providing ample insurance against all leakage.

The cylinder mould is supported by two large overhanging bearings placed on the outside of the vat, thereby reducing to a minimum any sag-



Close-up of frames and housings supporting press rolls. Note heavy construction ging of the mold and the consequental troubles which emanate from such a situation.

The complete machine weighs 16,000 lbs. probably four or five thousand pounds more than any other machine on the market.

Although our standard machine is built with a 36"x84" cylinder mould with a capacity of eight tons of ground wood and fifteen to eighteen tons of sulphite, machines of any size or capacity can be built as desired.

The thought which we wish to convey to the reader and impress upon his mind is that although the original price of our machine is somewhat higher than the ordinary machine, the expense is more than justified by the long life and efficient production obtained. Our belief in the need of a heavy machine of the type described, has been confirmed by the many orders and repeat orders for it within the last few years. As one opertaor wrote us—"When two of your machines take the place of five others, what more can a paper manufacturer ask."

⁂

TO REACH THE TOP

Applicant: "I'm ready to begin at the bottom, sir."
Newspaper proprietor: "Well, what's your idea?"
"To start first with the leading editorials and gradually work myself to the sporting page."—Life.

She, in a tantrum, "Absolutely, I'm going away to die. Give me my tooth brush and powder puff."—Life.

AS HE LEARNED IT

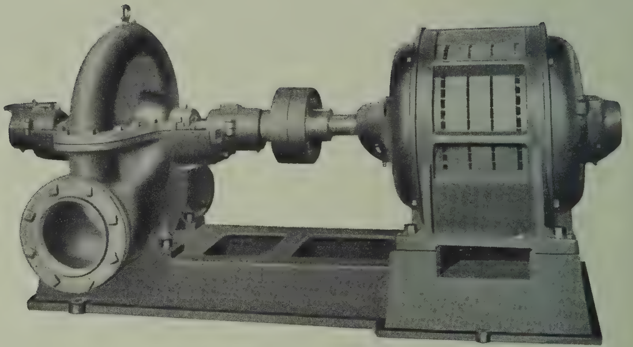
Teacher—"What, Oscar, is the ancient order of the Bath?"
Oscar, puzzled—"I dunno. Johnny usually comes first, then Willie, then the baby,"—Lit. Digest.

LITTLE HOPE

At the grave of the departed the old darky pastor stood, hat in hand Looking into the abyss he delivered himself of the funeral oration. "Samuel Johnson," he said sorrowfully, "you is gone. And we hope you is gone where we 'specks you ain't."—Life.

"Were you trying to catch that train, sir?" he asked pompously.

The panting, would-be passenger eyed him balefully for a second before he hissed the reply, "Oh, no. I just wanted to chase it out of the station."



Class A Double-Suction Horizontal Split-Case Centrifugal Pump

These Pumps are Tailor Made

HAVE you ever purchased a pump for use in your mill, selecting a stock piece and having it adapted to your needs? Have you ever installed a pump designed especially for your purpose to meet the conditions existing in your plant?

If you have compared the performance of these pumps, the results which you have obtained will undoubtedly prove that the same difference exists between a ready-made and a made-to-order pump, as there is found between a "hand-me-down" and a tailor-made suit of clothes.

And just as there is a difference also in tailor-made clothes, so there is a difference in made-to-order pumps. The new Valley Iron Works Company Centrifugal Pumps designed by our engineering department to meet the conditions existing in your plant, will be found to stand the most severe tests. The large number of our pumps now giving satisfactory service in paper and pulp mills all over the United States and Canada, prove this to be true. The fact that first orders are followed by repeat orders gives further proof.

Our pumps are simple in construction with no unnecessary parts. They are easy to care for and worn parts may be easily replaced. Valley Iron Works Company pumps are built for all high pressure service and due to their scientific design, higher efficiency results.

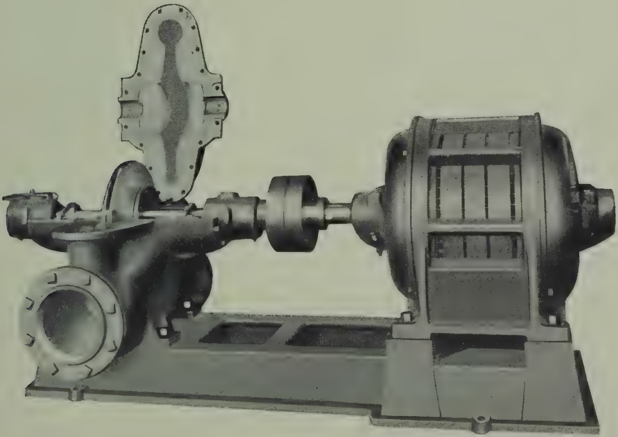
The pumps are designd with a large water inlet passage thus reducing friction to a minimum. They are carefuly balanced against vibration, and are balanced hydraulically against end thrust. Their construction eliminates the unusual and unnecessary shocks and eddies which decrease the efficiency of so many pumps. The casings are split horizontally, with pipe connections and bearing supports forming a portion of the casting in the lower section. This makes it possible to press the impellors firmly on the shaft so that they do not work loose in operation.

Due to their high efficiency, Valley Iron Works Company Centrifugal Pumps take smaller motors. As with all high grade products, the pump itself may cost more than the ordinary run of equipment, but this extra expenditure is balanced by the fact that a smaller motor is necessary.

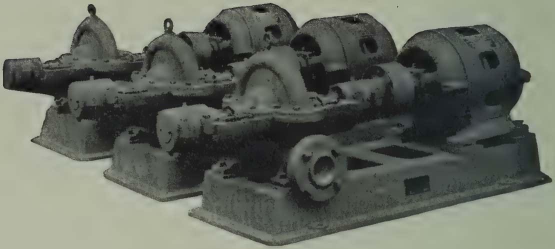
Too much emphasis cannot be placed in the need of highly efficient pumps wherever continuous performance is necessary and where shutdowns occur, if for any reason the pumps stop. Valley Iron Works Centrifugal Pumps have proved themselves so steady in performance that shutdowns, due to pump trouble, are few and far between.

Our pump designer is a man who has had years of experience with one of the largest pump builders in the country. Furthermore, he is especially adapted for the designing of pumps for paper mill purposes due to the fact that his recent years of experience have been entirely in connection with paper mills as a pump expert.

When your inquiry is received, therefore, you may rest assured that



The same pump with case opened



A battery of our Centrifugal Pumps

it will have the attention of one of the best men in his line in paper mill pumping problems in the country.

If you are in the market for a Centrifugal Pump of any type, or for any purpose, by all means investigate our proposition. Let us prove to you what Valley Iron Works Company pumps have accomplished in other mills and let us describe to you how we can design and build a pump which will fit your need exactly and which will save in time, trouble and power.

Let us tell you of Valley Iron Works Company pump service; of the elaborate testing equipment with which we try out your pump under the conditions which it will meet in your plant, before it leaves our shops.

* * *

YOU CAN'T BLUFF ST. PETER

A man appeared before St. Peter asking admittance to Heaven. He was called to account and asked to enumerate his earthly possessions.

"And did you have a car?" asked St. Peter.

"Yes sir," said the man.

"What kind."

"A Packard."

"Very well," said St. Peter, "you take your place over there on the front row with the Episcopalians."

The gates closed upon the newcomer.

Another man stood before St. Peter.

The same proceedings as before.

"Did you have a car?"

"Yes sir," said the man.

"What kind?"

"A Ford."

"Humph," said St. Peter, "you just step inside and take your place with the Christian Scientists. You only thought you had a car."

Send Us This Data Sheet Today

Note:—If the second or third questions cannot be answered, where pumps are now doing the work required, place a vacuum gauge on the suction pipe close to the pump and a pressure gauge on the discharge close to the pump and give us the readings, together with the distance between the level of the gauges; these with correct answers to 4 and 5. We can then arrive at the data sufficiently close. Care must be taken to use gauges that are reliable—then if more water is desired we can easily make provision to get it. If the installation is a new one, the capacity must be stated and the actual head given; then the size of the pipes can be designed to fit the capacity economically.

1. Number of pumps of each capacity required..........................

2. Capacity of each size in gallons per minute, if known..........................

....

3. Total head, including suction lift and discharge pressure, and total pipe losses in both suction and discharge pipe lines..........................

....

4. Length and size of suction pipe, number and kind of elbows, and all valves used in the suction line, and the actual suction lift..........................

....

5. Length and size of discharge pipe, with number and type of all elbows and valves used, also actual discharge head..........................

....

6. Type of pump, whether horizontal or vertical..........................

7. Nature of liquid to be pumped; cold or hot; clear or gritty; fresh or salt; acid or alkaline; pulp stock or other solids..........................

....

8. If pulp stock, state percentage of density, or whether it has been screened or may contain knots or slivers or other materials..........................

....

9. If acids, state kind and specific gravity..........................

10. If belt driven, give kind of power, and diameter and speed of drive pulley..........................

11. If motor driven, state current used; if direct give voltage; if alternating, give voltage, phase and number of cycles..........................

....

12. State kind of service, whether continuous or intermittent..........................

....

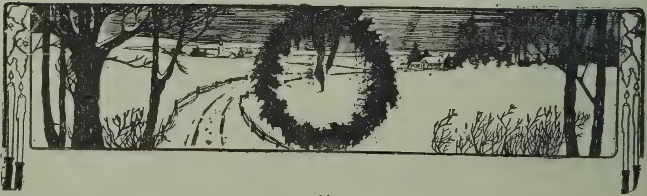
A Complete Line of Paper Mill Machinery

©

- Niagara Beaters
- Vesuvius Oxidizing Sulphur Burners
- Beating, Washing and Bleaching Engines
- Barkers and Barker Attachments
- Chippers—Re-Chippers—
- Knot Screens (Revolving)
- Diaphragm Screens—Felt Washers
- Blow-Pits
- Cylinder Machines
- Deckers (Single and Double)
- Stuff Chests (Vertical and Horizontal)
- Shredders and Special Washers for Old Paper Stock
- Wet Machines and Patent Roll Skinners
- Bronze, Semi-Steel, Lead and Iron Castings
- Valley Iron Works Co. Centrifugal Pumps
- Acid Tanks
- P. A. P. A. Rotary Screens

Valley Iron Works Company

Appleton, Wisconsin



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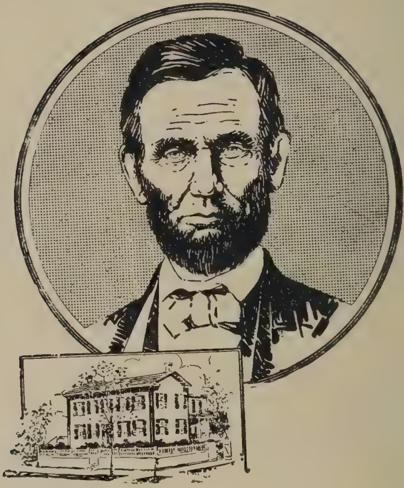


Learning From Lincoln

AS THE years go on the wisdom and humor of Abraham Lincoln becomes more and more appreciated. Few men in the history of the world have been confronted with the problems that he solved, and only a man of his calibre could have accomplished what he succeeded in doing. Of his characteristics, his love of justice, his self control, his democracy and his faith were perhaps the ones that won for him his greatest successes, but always his humor and his ready wit helped him through many serious difficulties. He has left behind him a wealth of stories, sayings, and shrewd bits of wisdom, that, if applied to present day conditions will bring many a silver lining to clouds decidedly gloomy. Compared to the difficulties which he met, our present troubles seem small. One of his sayings can be applied to most of us.

Things seldom turn out as bad as we sometimes expect they will. Conditions in times of depression although bringing many serious situations are never as bad as they seem. We are all of us prone to do much useless worry. A story is told of Lincoln which brings out his spirit of faith and optimism. While driving in Illinois after a storm he was stopped by a farmer who told him that he had better turn back because he had heard that the bridge across Fox River was out and that he probably would not be able to continue his journey. "Thank you, mister," replied Lincoln, "but I make it a rule never to cross Fox River until I get to it."

It is not always in periods of great prosperity that the greatest successes come. Industry, efficiency, right dealing and thrift will win in periods of depression. In such times the men and firms who build on a strong foundation and who produce to the utmost of their ability, will succeed. The opportunities which 1922 will offer will be for individuals and organizations of this class but optimism and determination are necessary. It doesn't pay to cross the river until you come to it.

Some Bits of Lincoln's Wisdom

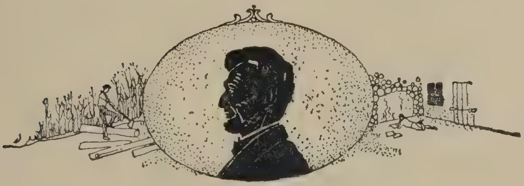
There are always some people who are trying to put the big kettle inside the little one.

The ground much touch a man before he can amount to anything.

You can't fool all the people all the time.

If you don't believe in the sway of fashion, go to church with your wife's bonnet on.

Taking what doesn't belong to you isn't honest, but some folks don't seem to find this out until they have tried it.



A Niagara Beater Installation

Workmen Boost the Niagara Beater

NO ONE is quicker to appreciate the good points and realize the the difficulties resulting from faults of a machine than the men who operate it. The fact that the men operating the Niagara beater everywhere are boosters for the machine tells a story in itself.

One of our engineers installed some Niagaras in an Eastern mill a few weeks ago. He remained at the mill for several days after the installation was made to be sure that the machines were thoroughly understood and to be at hand should any misunderstanding or difficulty arise. One morning one the beater hands, an old negro said, "Boss, I'se praying for you and them there beaters every night. No more scraping and dumping. They sure do save this here old back of mine." The machines dump themselves automatically and do not require the scraping that is necessary with the old type Holland beater. But these are minor advantages. Below are listed a few of the features that make Niagaras the best.

Power costs are lowered.
Beating time is shortened.
Floor space is saved.
Labor costs are lowered.
Uniform quality of beating results.

One beater does the work of two and sometimes three Holland type machines. From 15 to 50% is saved in power as it is more effectively transmitted to the stock. Floor space is saved and a congested beater room relieved as the Niagara requires less room than the ordinary beater.

The initial investment is lower as a smaller installation decreases construction costs and fewer machines are necessary, thus saving in the investment for both beater and power equipment because the machines are easier to operate and inasmuch as fewer men are required, lower labor costs result.

Facts About the Niagara Beater

The Niagara beater is 4½ feet high at the charging end, 7 feet high at the back.

Niagara beaters are equipped with the latest type bandless roll.

Niagara beaters are very compact and deep, occupying the floor space of an ordinary 1000 lb. beater, 20 ft. x 15½ feet and can take in over two thousand pounds of dry stock, circulate it at a consistency of 7 or 8% at the rate of 95 feet per minute.

One Niagara produces as much as three Holland type machines.

The Niagara beater has a more advantageous position of the lighter barstand and an improved position and design of the doctors.

The backfall insures uniformity of pulp and materially cuts power and labor costs.

The Niagara beater dumps clean with absolutely no raking down in about 3½ minutes.

Churning is eliminated in the Niagara beater.

The Niagara Beater has proved to be the most effective bleaching unit so far designed in the paper industry on account of the rapidity with which the stock travels in the beater.

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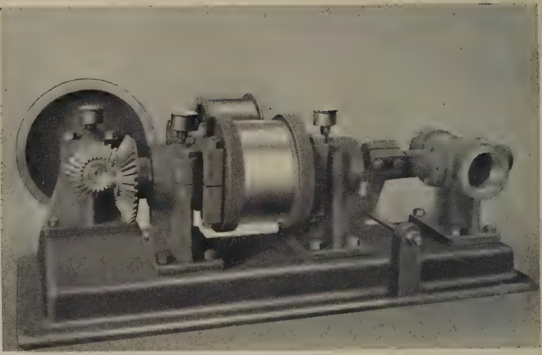
DURING the past year 29 mills in the United States ordered from one to six Niagara beaters each. Due to the decreased cost of producing, Niagara beaters are now sold for less than at any time since their manufacture was started. Many Niagara beaters will be installed this year. Put your mill on the efficient Niagara basis.



The Henderson Grinder Regulator

An Unconditional Guarantee

WHEN a manufacturer unconditionally guarantees his product the purchaser may feel sure that the manufacturer knows that his product is all that it is representated to be. Because we know what the Henderson Grinder Regulator can accomplish and are sure that all of the material going into its construction is of the best, we unconditionally guarantee it.

The Henderson Grinder Regulator consists essentially of a specially designed cylinder type pressure valve operated from a water wheel and a constant speed shaft through a differential gear set. One of the internal gears of the differential is driven from the water wheel by means of a belt and pulley. The differential housing which forms a pulley is driven by means of a belt from a constant speed shaft. The stem of the regulator valve is directly connected to one of the internal gears of the differential. A clutch pulley is installed on the constant speed shaft so that when two or more grinder regulators are driven from the same shaft any one may be stopped without removing the belt. The whole unit is sturdy, compact and practically fool-proof.

When the regulator is in operation the pulley formed by the differential housing is driven from the constant speed shaft at exactly one-third the speed of the pulley driven by the water wheel, and under this condition the cylinder pressure valve remains at rest. Should the water wheel tend to increase in speed, due to backing off a pocket or other causes, the cylinder valve instantly rotates to a more or less degree thereby admitting more pressure to the grinder cylinders and checking the tendency to increase speed. Should the water wheel, however, tend to decrease in speed, through wood jamming in the pockets or other causes, the cylinder valve instantly starts to close and cut off the pressure to the pockets, thereby permitting the wheel to maintain its normal speed. The revolutions per minute of the constant speed shaft depends on the speed at which it is desired to operate the grinders.

The Henderson Grinder Regulator is furnished complete with belts, constant speed shaft and clutch pulleys. What piping is necessary is furnished by the purchaser.

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THEY COVERED A LOT OF AREA

Lincoln told a story at a political conference once regarding two men who had a fight and pursued each other all over a six acre lot. At the end of the fight one sued the other. During the trial the lawyer for the defense asked the one who sued, "You say that you fought all over a six acre lot?"

"Yes, sir," replied the man at the stand.

"Don't you think that this is an all fired small crop of fight, to gather from so much ground?" the lawyer asked.

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HE HANDLED THE SENATOR

During Lincoln's first year at the White House a senator from Maine called on Lincoln in an endeavor to obtain something that Lincoln did not feel justified in granting. After being closeted with the Senator for three hours the Senator left apparently satisfied. The President's secretary who knew the subject taken up during the conference questioned the President regarding the result. Lincoln replied, "There was a farmer in Illinois who had a big log in his field that was too big to haul, too knotty to be cut and split and too soggy to burn. 'There is only one way to get rid of it,' the farmer said to his son, 'just plow around it.' Well, I've been plowing around the Senator from Maine for the last three hours and I've been afraid he would find out what I was doing."

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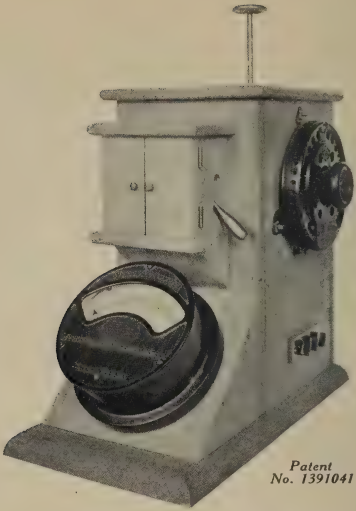
THE HOMLIEST MAN HE EVER SAW

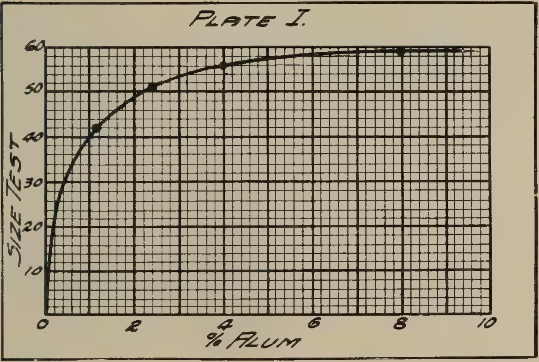
Lincoln frequently told a story regarding a chance meeting with a stranger in a little Illinois town. The stranger was evidently from the west and when he saw Lincoln pulled a revolver and pointed it at him. "What's the matter," Lincoln asked? "Well Sir," replied the stranger, "I swore once that if I ever met a man who was homelier than I be, I'd shot him on the spot." "Shoot away," said Lincoln, "If I am homelier than you, I'd be glad to die."



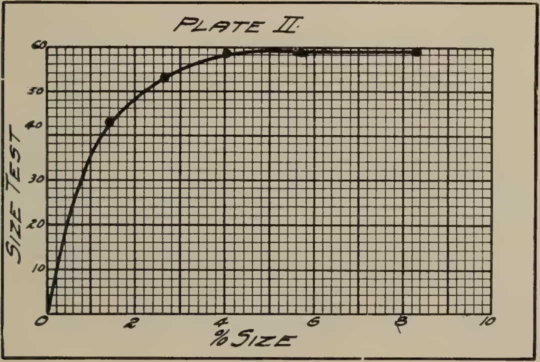
The New Valley Size Tester

The Valley Size Tester Filling a Need

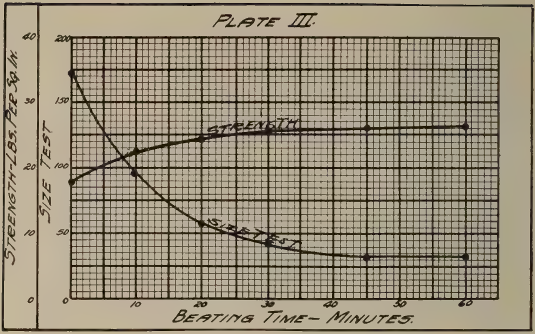
THAT a great need has existed in the past for an instrument which will quickly and accurately test the size in paper has been demonstrated to us in the last few weeks. Since our original announcement regarding the Valley Size Tester appeared in the last BEATER, we have received numerous letters requesting further information on this remarkable instrument and have sold machines to mills scattered all over United States and Canada. Up to date manufacturers realized immediately the value of a standard unit of measure for sizing and recognized the need for an instrument to give this measure. The fact that it is possible by using the tester to determine the proper percent of alum and size to use is another feature that appealed. Under present conditions economical operation is absolutely necessary and to prevent a waste of raw materials aids materially in the obtaining of this same economical operation. We are again showing charts obtained by the Valley size tester, to emphasize the ease with which size and alum may be wasted and how simple a matter it is to determine the proper amount of alum and size to use to obtain the desired results. The Valley size tester can be operated by anyone, and has demonstrated its ability to perform an average of five tests hourly,



This curve shows how with a given percent of size, the sizing increases as alum is added till a maximum is reached. It demonstrates that it is useless to add more than enough alum to fully precipitate the size. This ratio varies with different stocks, water, clay, etc.



This curve shows how the size test varies with an increase in size in the paper the ratio of alum to size being maintained constant. Note that each additional increment of size produces a smaller increment in sizing and that it is a waste of size to add more than 3 or 4%. This amount varies slightly with the kind of pulp being used, its treatment, the water used, etc.



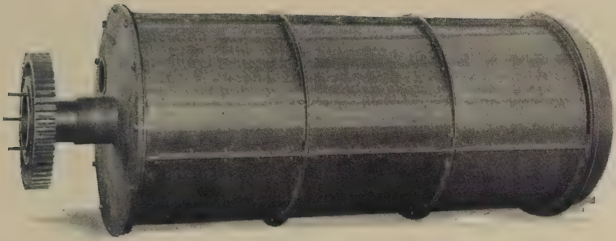
This curve shows how strength increases and the size test falls as the pulp is beaten, the percent of size and alum being kept constant. This is very interesting because it demonstrates why it is so difficult to size beaten pulp.

24 hours per day. It is as handy as a basis weight scale and a novice can make tests on it accurate enough for research work. The Valley size tester makes it possible to keep the sizing constant during a run and from one run to another, and moreover prevents serious loss in size and alum.

* * *

Filling for Beater Rolls

THE problem of obtaining wood filing for beater rolls of the right size and quality and at a moment's notice has been solved. We have devised a new machine which we have installed in our own plant and which we call a wood-filling slasher. With it, it is possible to cut filling for beater rolls to any size desired, turning out the piece complete in one operation. The machine does the work much more accurately and quickly than was possible with the old hand process, and in spite of the fact that the very best grade of white oak is used wood filling can be turned out at a very reasonable price. A good supply in standard sizes is kept on hand, cut, packed and ready for immedite shipment. Any size, however, can be turned out on the machine and twelve hour service can usually be given. Let us demonstrate our ability to meet your requirements the next time you are in the market for wood filling for your beater rolls. Due to our efficient method of production you will find that the price is lower.



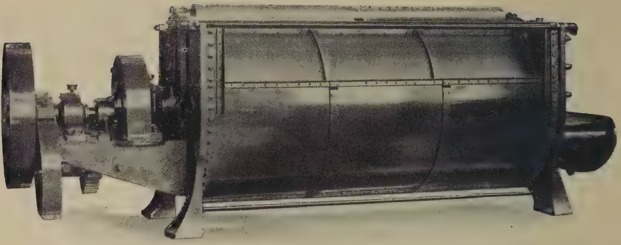
View of Cylinder Construction of P.A.P.A. Screen

A Really Successful Inward Flow Rotary Screen

THE problem of screens has for years been confronting every pulp and paper maker. Various types of screens have been designed and tried out with more or less success, but one is safe in stating that so far no screen has been put on the market on the American continent that can be said to possess all the qualities desired of a first class screen. The type of screen most commonly used today is the flat screen. Everybody with experience of this screen type knows how noisy, ineffective, labor and power consuming these screens are. The cost of repair and upkeep of the flat screen together with the large floor space they require are other serious drawbacks. In spite of all these disadvantages, the flat screen has held its position in the pulp and paper mills for years, not because it is liked by anybody, but because no other screen on the market could give as good service.

Theoretically, the rotary, inward flow screen seemed best and a large number were built but did not stand the test. The great difficulty proved to be that they were merely mixers and did not effectively screen the stock. This is emphasized by the fact that they have not been adapted for pulp screens, where screening qualities are put to the severest test.

The P.A.P.A. screen is equally well adapted for screening both pulp and paper and is the first really successful machine of the sort ever put on the market. It was invented by a young Swedish engineer and has been used extensively in Europe, but has just been put on the market in America. The screen consists of one slowly revolving (not shaking) perforated cylinder which is placed in a vat so deeply that the stock covers practically the whole surface of the cylinder only leaving that much of the cylinder uncovered, as is necessary to keep the slots clean.



The P.A.P.A. Pulp Screen

The cylinder is composed of easily exchangeable screen plates of phosphor bronze. The cylinder is open in one end in direct communication with the outlet of the screen and this end rests on fine lignum vitae bearings. Here the tightening consists of two felt lined metal bands. Provision is made to prevent forming of lumps between the cylinder and the bands by means of pressure water.

The cylinder is closed in the other end, which is drawn out into a sleeve through which the power is transmitted. Here the tightening consists of suitable packing box arrangements. The inward suction of the stock through the cylinder is created by means of a polygonal drum inside of the screen cylinder. This polygonal drum is entirely closed in and is made of cast iron positively water tight and securely fitted to the driving shaft. To prevent the stock inside the screen-cylinder rotating with the polygonal drum, the cylinder is equipped with suitable ribs. The drum fills practically the whole of the interior of the cylinder, thus preventing the formation of lumps in the stock; further, the drum revolves, entirely covered with stock and is not exposed to the air, which feature prevents foaming. The vat consists of cast iron end frames and iron plate wall. The iron plate is lined with copper for sulphite pulp and paper, unlined for sulphate. The vat inside is absolutely smooth and has in the bottom

Comparison between size of slots required on P.A.P.A. Screen and on Flat screen for pulp of same degree of cleanliness:

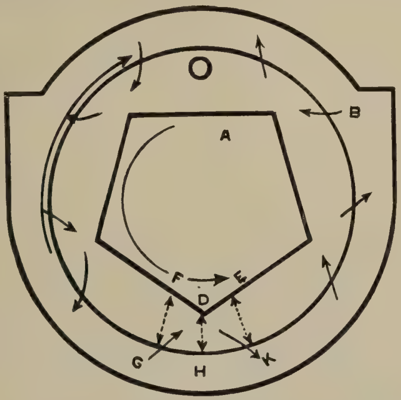
P. A P. A		FLAT
.016" cut	equals	.010" cut
.016" cut	equals	.010" cut
.020" cut	equals	.014" cut
.024 cut	equals	.018" cut

a drain easily accessible from outside. The cleaning of the slots is done by a spray-pipe placed inside the cylinder and the water is collected in a gutter outside the cylinder. The drive is direct on the axle of the polygonal drum. The screen cylinder is driven from the axle by means of gear wheels. All gearing is milled and well protected by steel guards. The bearings are SKF ballbearings and those nearest to the screen are equipped with extra tightening arrangements for protection against water and stock.

Illustrating the Principle of the P. A. P. A. Screen

The motion of the stock is caused by the revolving of the polygonal drum A, with higher speed and in opposite direction of the screen cylinder B.

The distance D-H is smaller than the distances F-G and E-K. When drum A revolves and point D comes on the extension of the radius on which point E. is located, the space in this point between the polygonal drum and the screen cylinder will be smaller and consequently a pulsation outwards will take place. Then point D passes the extension of the radius on which point F is located, and goes over where it is on the diagram, the space between the drum and the cylinder becomes larger and an inward suction takes place.



Opinions of a Few of the Users of P. A. P. A. Screens

"The screen guaranteed to handle up to 15000 kg. sulphite or sulphate paper per 24 hours easily takes care of this quantity. It requires relatively small space, runs very quietly, is strongly built and screens the stock remarkably well. It is easy to handle, requires minimum of upkeep and we feel that we have every reason to be satisfied with it and we consider it an excellent screen."

STROMSNAS BRUKS AKTIEBOLAG

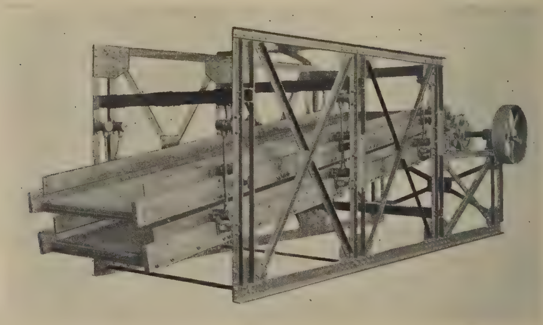
"The screen is working in every respect satisfactorily. As compared with our flat screens the Spangenberg screen makes cleaner stock, requires little attention, is simple and solid and the screen runs evenly and noiselessly. The power consumed is small."

UDDEHOLMS AKTIEBOLAG, Karlstad.

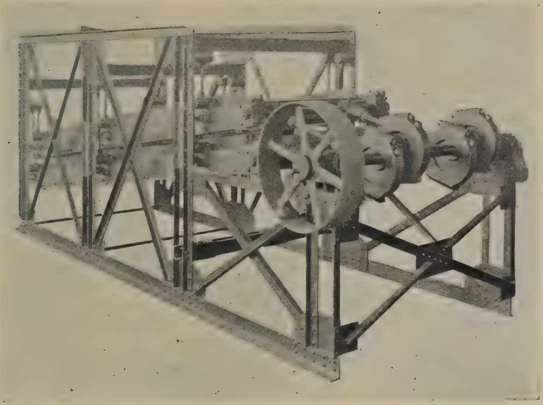
* * *

Valley Chip-Screen, Shaker Type

Strength and simplicity, extreme rigidity of frame and ready accessibility were in mind when our Chipper Screen was designed. The entire screen is self contained in one unit which is built with a steel frame very rigid in construction, braced and reinforced at all eseential points. As a result maintainance and repairs are reduced to a minimum, while the great



The Valley Iron Works Co., Chip Screen—Side elevation



Rear View Chip Screen

accessability of the machine's design aids materially in its installation in a mill and makes easy what little repair work is necessary.

The illustrations picture the machine in detail. The upper trays are on a screen equipped with coarse plates of any slot desired. The lower trays are made with finer slots of any desired size. The trays are hung in a swinging hanger of an improved design and are kept in alignment by roller guides attached to the main frame.

The shaking motion is obtained through eccentrics, which are connected to the driving shaft at one end, the trays at the other. The machine is built with a pulley drive, and has a shipping weight of 10,000 pounds.

◆ ◆ ◆

The Babson Industrial Clock

THE Babson Industrial Clock which many readers of the BEATER may have seen offers much encouragement to the paper and pulp industry. This clock lists the main industries and shows by the position of its hand what industries have gone through the process of liquidation and are approaching normal conditions and what ones must yet liquidate. Those that have already liquidated, in order, are: silk, food products, leather and shoes, woolen and cotton, clothing, slaughtering and meat packing. The hand now points to paper and shows that within a short time conditions in the paper industry will be greatly improved. Not yet liquidated are: building materials, railroad equipment, iron and steel, automobiles, and coal and oil.

A Complete Line of Paper Mill Machinery

©

- Niagara Beaters
- Vesuvius Oxidizing Sulphur Burners
- Beating, Washing and Bleaching Engines
- Barkers and Barker Attachments
- Chippers—Re-Chippers—
- Knot Screens (Revolving)
- Diaphragm Screens—Felt Washers
- Blow-Pits
- Cylinder Machines
- Deckers (Single and Double)
- Stuff Chests (Vertical and Horizontal)
- Shredders and Special Washers for Old Paper Stock
- Wet Machines and Patent Roll Skinners
- Bronze, Semi-Steel, Lead and Iron Castings
- Valley Iron Works Co. Centrifugal Pumps
- Acid Tanks
- P. A. P. A. Rotary Screens

Valley Iron Works Company
Appleton, Wisconsin

The BEATER

Where and How
High Grade
PULP AND
PAPER MILL
MACHINERY
Is Built

The BEATER

Published for Paper and Pulp
Manufacturers
by the
Valley Iron Works Company
Appleton, Wis.
Vol. IX No. 2

Where *and* How *High Grade* Paper *and* Pulp Mill Machinery *is* Built

This issue of The Beater is produced in a larger form than usual to make possible the better development of the subject, "Where and How High Grade Paper and Pulp Mill Machinery is Built". The purpose of this number is to take our friends, step by step, through the processes necessary in the building of the machines which they use in their mills; to show them the painstaking care required if fine machinery is produced; to bring to them, in all parts of the country, something of the spirit of the Valley Iron Works Company organization, and to show them with illustrations the fine plant and equipment which make it possible for us to produce high grade machinery.

At the end are listed a few of the many users of Valley Iron Works Company equipment, as well as the different machines for pulp and paper mills, built in our plant. Practically every step in converting a log to a finished sheet of paper may be carried out on this equipment, so varied is the line. We will be glad to give full information regarding any piece in which you may be interested. A letter to either our main office at Appleton, Wisconsin, or to our New York office, at 350 Madison Avenue, will receive our immediate attention.

A bird's eye view of the foundries, shops, warehouses and general office of the Valley Iron Works Company at Appleton, Wis.

Where *and* How *High Grade* Paper *and* Pulp Mill Machinery *is* Built

HIGH GRADE PAPER and pulp mill equipment; machines that are carefully built to operate efficiently and economically; that are made to turn out a fine product; that will withstand the wear given by years of constant usage and with minimum repairs; that is what we are writing about. It should be a subject of vital interest to manufacturers of paper and pulp.

For over thirty years the Valley Iron Works Company have been building such equipment. Firms that were our customers when we first commenced the making of machinery, still purchase equipment from us. And to the list, year by year, have been added many more, even in far corners of the world, who in turn come back again and again.

Starting in a small shop with little equipment the plant has grown in the past few years, to many times its original size. Above is pictured the Valley Iron Works Company foundries, machine shops and warehouses as they stand today. An idea of what this plant contains and of its product may be obtained in the following pages.

The organization has aimed not alone at a fine product, but at an exceptional service as well. This does not mean prompt delivery alone, but careful help in the installing of equipment and co-operation to assure its giving maximum production.

It is the policy of the Company to be constantly on the alert for new developments in paper and pulp mill machinery, and as a result many advances in time and labor saving equipment have been first commercialized through our efforts, research, and co-operation. Recent examples of this policy are the Niagara Beater, the Wolf Chipper, the Valley Size Tester, the Valley

Paper Machine with a variable speed transmission drive, the P. A. P. A. Rotary Inward Flow Pulp and Paper Screen, the Voith High Pressure Stock Inlet, and Murphy Continuous Beating Systems.

The Niagara Beater proved a great forward step in efficient beating. One Niagara frequently takes the place of two or three Holland beaters, turning out an equal amount of stock of a better grade, with considerably less power consumption, and using less space and labor, as well as giving a lower installation cost for the same volume. The Wolf chipper proved an equally big advance in its field, increased output without a corresponding increase in power and labor costs, made a better chip and proved more durable.

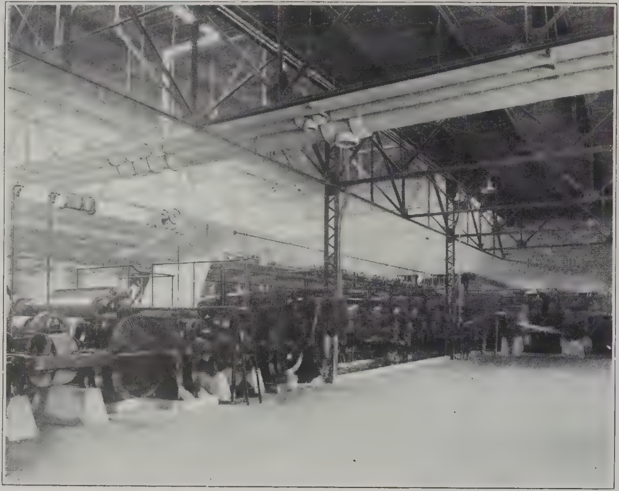
The P. A. P. A. screen was the first successful inward flow rotary screen on the market and has proved very satisfactory, both in the manufacture of paper and pulp. It is particularly easy to install, requiring no special foundation and is of simple, rigid construction. It has no shaking parts, it operates noiselessly and requires little power. The P. A. P. A. screen has a large capacity and makes exceptionally clean pulp and paper.

The Valley Paper machine is built with unusual weight and strength and is another recent development of the Valley Iron Works Company. It contains a number of refinements and special features that make it a machine of unusual excellence. In its construction every effort has been made to increase efficiency, to make it easy to handle and care for, and to minimize the chance of accidents. With the Valley Paper machine was developed a variable speed transmission drive, something unique in the paper making industry. A view of one of the machines installed appears on the following page.

Within the past two months the Voith High Pressure Stock Inlet has been added to the list of new equipment put on the market by the Valley Iron Works Company, and came at a time when it was exceptionally welcomed by many manufacturers. The Voith Inlet feeds the stock directly onto the wire of a fourdrinier machine at any speed desired, making it unnecessary to pitch the wire regardless of how fast the machine is running. It eliminates aprons and slices, thus reducing the wear on the wire. Simple adjustments can be made across the entire width of the machine, which make possible a sheet of paper of even thickness.

Another recent development is the Murphy continuous beating system for board mills.

Views of the Valley Iron Works Company offices at 350 Madison Ave., New York.



A new Departure. In which is pictured a cylinder roofing paper machine designed by our engineers, built in our shops and installed by our service men. Due to special conditions existing in the plant it was necessary to use direct variable speed transmission drive, something unique in paper machine construction.

This system saves in time, labor, and power consumption, reduces the wear on the jordans and greatly improves the quality of the stock. These are a few of the many forward steps taken by the Valley Iron Works Company.

With an ever increasing demand for our products among eastern mills it was necessary for us, during the past year, to install a New York office, which is now located at 350 Madison Avenue under the direction of Mr. Harry Bennett, known throughout the east as a paper mill engineer of ability. He was for years associated with George F. Hardy, well known paper mill engineer. Views of the New York office appear on the preceding page.

The demand for modern, efficient, paper mill equipment is greater in foreign markets than ever before. A number of export shipments have recently been made by the Valley Iron Works Company, the Parsons Trading Corporation, 110 East 42nd St., New York City, acting as our export agents.

On the following pages the processes, step by step, through which the machinery produced by the Valley Iron Works Company, passes in the course of its building, will be described and illustrated. The story and the pictures will emphasize the care and the quality that go into the construction of equipment built for paper and pulp manufacturers by the Valley Iron Works Company.

The first step tells of the designing and engineering department in which the plans for the equipment to be built are drawn up. The next step takes the reader through our pattern shops, the foundries following.

After the foundries the methods of cleaning the castings are described and this is followed by by an interesting description of the machine shop where the pieces are finished. After the machine shops come the erecting rooms, the carpenter-machine shops and the packing and shipping department. The last step in the journey is taken in the plant where the machine is to be installed, and where our engineers supervise the erecting. In reading over the description matter and looking at the illustrations bear in mind that this organization stands back of its products. You are safe in purchasing equipment built by the Valley Iron Works Company.

Step No. 1—*The* Machine Properly Designed

A Complete Engineering *and* Service Department

To build without a plan is impossible and to build with a poor plan is to court disaster. Realizing fully the need of perfection in the preliminary stage, great care has been taken by the Valley Iron Works Company in building up a complete engineering and service department.

Here plans originate and machines are designed. With the aid of this department, equipment is so built as to fit exactly the needs of the individual manufacturer. Conditions in different mills so vary, that radical changes in the construction of certain machines are necessary, if they are to operate to the best advantage in the plant where they are to be erected. This is especially true of pumps.

The engineering department makes the changes in specifications necessary to assure the purchaser of equipment, that he is buying a machine built to fill his needs exactly. This sometimes results in radical departures from custom, which may develop improved methods of production.

An example of this is found in the results obtained in the installation of a large cylinder paper machine in an eastern mill a short time ago. The construction of the mill was such that the usual overhead drive was out of the question. A direct variable speed transmission drive was installed, the first time anything of the kind was attempted in connection with a paper machine, and the results were excellent.

The engineering department is always glad to cooperate with any manufacturer interested in the installation of new equipment. They will advise with him and can frequently make suggestions that will mean the saving of many hundreds of dollars for him.

There are, in connection with the Valley Iron Works organization, not only a staff of trained paper mill experts who devote all of their time to their work in our office, but there are also experts in practically every department who, while not continuously in the employ of the Valley Iron Works Company, form a consulting board whose opinion and advice is invaluable.

This staff of trained engineers and group of experts in the different departments of paper and pulp manufacturing combine to make a group of men whose experience eliminates "guess" in the manufacture of machinery. A machine that will meet requirements, that is designed to withstand years of wear and that is made as economically as possible, invariably results. A manufacturer takes no chances when he purchases equipment built by the Valley Iron Works Company. He may be sure that it will be built to fill his needs exactly, and that it will give him maximum service.

Good machines require careful planning. A corner in our drafting and engineering department where all equipment is carefully designed.

Perfect patterns require a good pattern shop and expert pattern makers. They are pictured here in the Valley Iron Works Co. pattern shop.

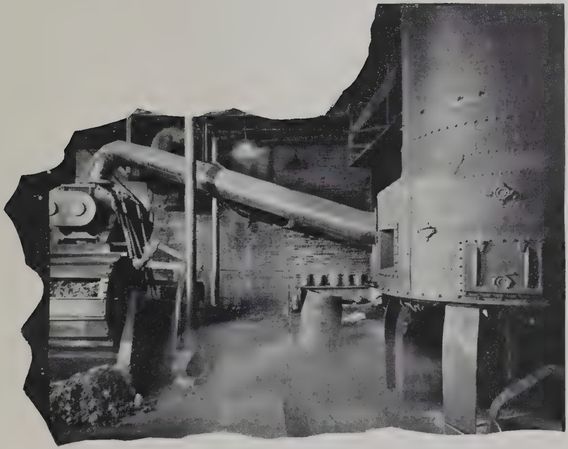
How Patterns are Stored. The above illustration is a corner in the pattern warehouse, a four story fire proof building containing shelf after shelf of patterns carefully catalogued, and filed where they can be located at a moment's notice.

Step No. 2—Patterns *that are* Perfect

IF THE machine is properly planned and designed, it cannot be a high grade piece of equipment unless the castings that go into it are made from perfect patterns. Realizing the value of such patterns and knowing that to depend on an outside pattern maker would frequently prevent quick deliveries, a large pattern shop has been made a part of the Valley Iron Works Company plant. In it are employed a crew of expert pattern makers, who co-operate with our service department, insuring quick and accurate work. The pattern shop is equipped with all mechanical devices necessary for producing perfect patterns.

To the casual visitor this room is one of the most interesting parts of the plant. Here, in wood, are made replicas of the huge metal castings that go into the machines built in the foundry and shops below. The skill and accuracy which these expert pattern makers show, always proves interesting to the layman.

No. 1 Foundry. At times closely resembles our idea of a fiery hereafter. A ten-ton electric crane and numerous mechancial helps greatly increase the efficiency of the men. Over 1,600 tons of castings are turned out in our foundries annually.



A Bellows Worthy of Vulcan. One of the large blower systems which force air through the cupolas and performs the same function as the old foot pedal bellows that the village smithy used.

Step No. 3—Castings *of the* Best Materials

IF A MACHINE is to stand up under hard usage, the castings which go into it must be made of the right materials and must conform to all requirements. They must be turned out by men who thoroughly understand their work, and who are assisted by modern equipment, if the castings are to be made economically.

All of these necessary requirements are met in the foundries of the Valley Iron Works Company. The best and most carefully selected materials are used, such as northern pig and Lake Superior charcoal iron. Experienced foundry men under expert supervision form the personnel and they are equipped with every mechanical help. The accompanying illustrations picture our three foundries in which castings are made of gray iron, semi-steel, brass, bronze, aluminum, and lead-antimony.

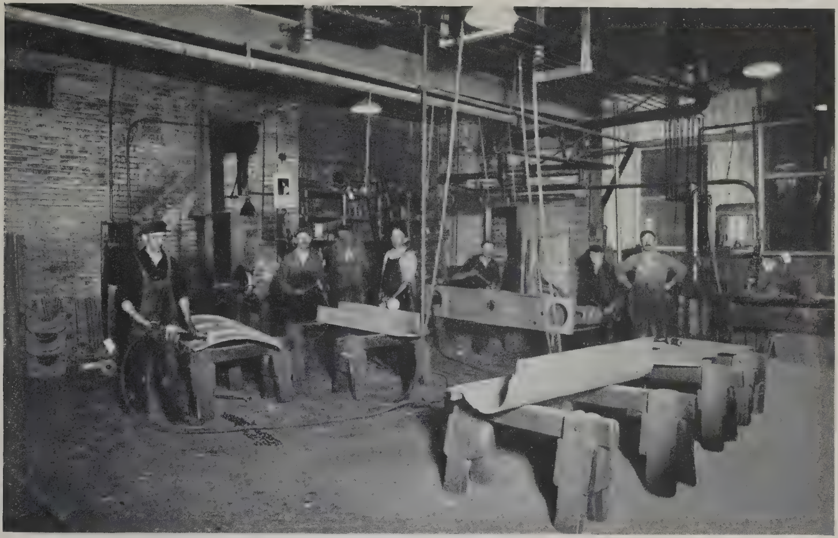
Visitors are always interested in the many mechanical helps used by the men. In both of the large foundries big 10 ton electric cranes carry heavy frames, patterns and castings from

one end to the other. There is not a square foot in either of the huge rooms that cannot be reached by these traveling cranes. The foundries are equipped with two large cupolas whose maximum daily output is 20 tons. One piece castings up to 12,000 pounds can be poured, the production of castings annually amounting to over 1,600 tons.

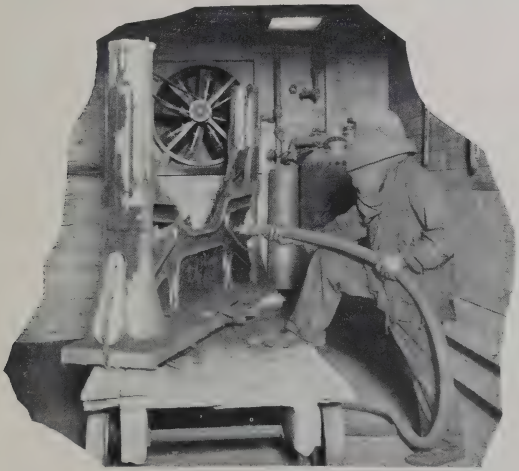
The processes in the foundry are interesting to watch. To see the men at work preparing the moulds for the hot metal, to watch the big automatic jarring machine used in the making of the larger moulds, a modern device that saves the time of two or three men, to see the pneumatic rammers pounding the sand into shape and the automatic sand mixers, is always interesting. But to watch the glowing, molten metal as it flows from the cupolas into huge buckets that are swung across the floor by the cranes and from which the fiery liquid is poured into the moulds, is probably the most interesting step of all.

Another illustration pictures the brass foundry, a small room in which all except the largest brass, bronze, aluminum and lead-antimony castings are made. In all our foundries modern equipment has taken the place of human effort wherever possible.

Upper. No. 2 Foundry.
Lower. The brass foundry.



As noisy as a boiler factory. The cleaning room where the rough spots are chipped and rounded off by automatic grinders and air hammers.



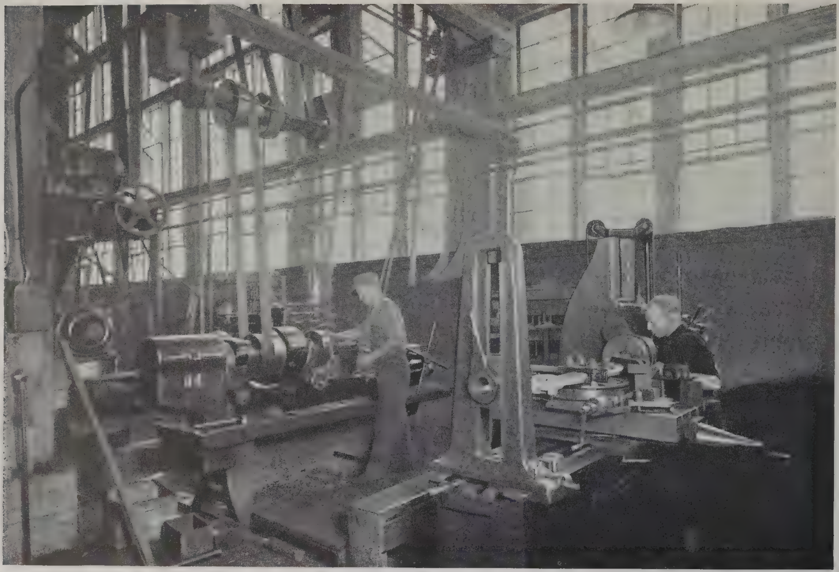
The Sand Blast Room. Not a deep sea diver nor a dough-boy ready for a gas attack. He is merely cleaning a casting with a high pressure sand blast. Needless to say a helmet is necessary.

Step No. 4—Castings *are* Carefully Cleaned

WHEN the castings are taken out of their flasks, they are first placed on a small flat car and run into the "Sand Blast Room" where the sand and scale are removed by means of a powerful sand blast, operated by compressed air.

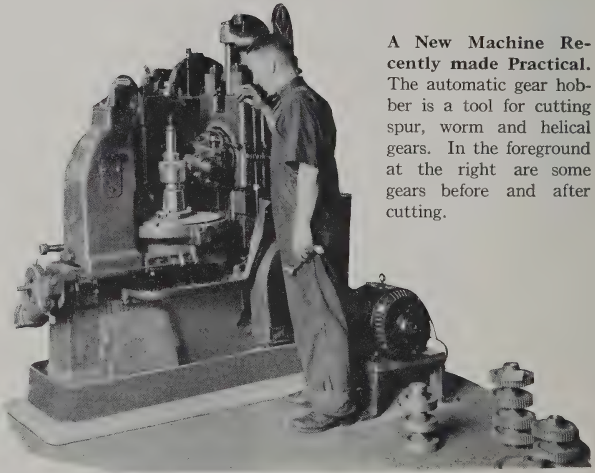
From here they are taken on the same car into the cleaning room where the rough spots are rounded off by automatic grinders and air hammers. It often happens, however, that the castings cannot be perfectly prepared with the automatic devices alone. Then they are carefully chipped and cleaned by hand.

The illustration above pictures the cleaning room and shows the men at work with air hammers. The illustration at the side shows a beater lighter rigging frame undergoing the cleaning process in the sand blast room.



In the Machine Shop. A corner of the machine shop picturing two medium sized tools; a universal boring bar for boring, drilling and milling, and a turret lathe.

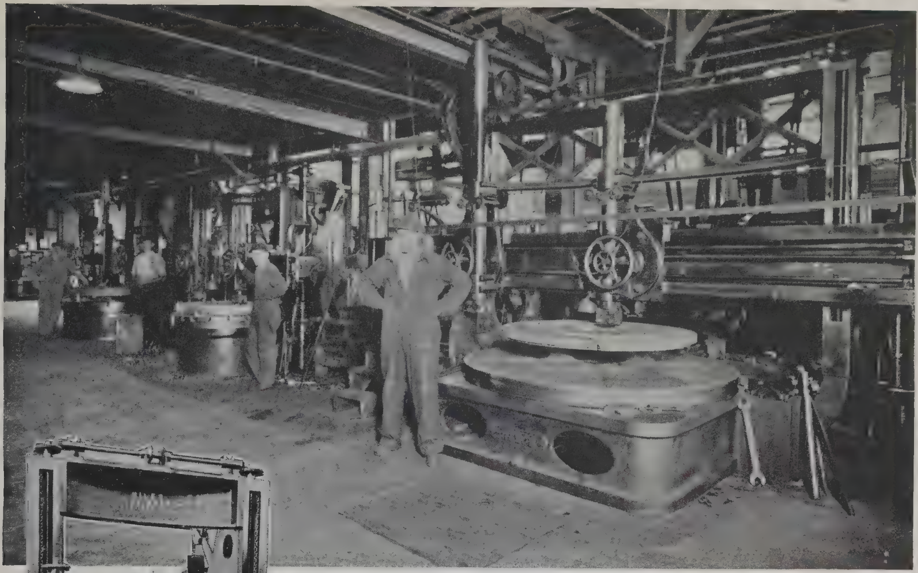
Step No. 5—Parts Machined *on* Modern Equipment *by* Highly Skilled Mechanics



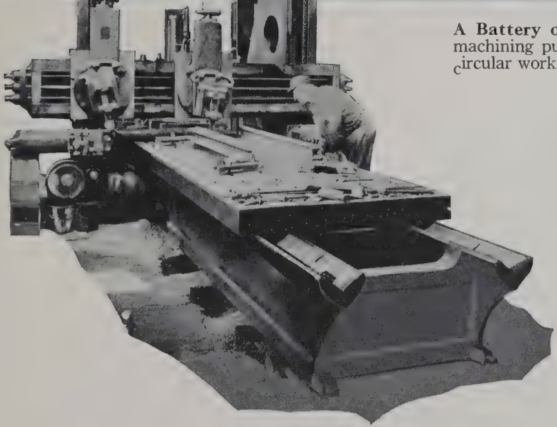
A New Machine Recently made Practical. The automatic gear hobber is a tool for cutting spur, worm and helical gears. In the foreground at the right are some gears before and after cutting.

It is very interesting to the layman visiting a modern machine shop to see the ease which which large and heavy castings are handled, tooled to fit exactly the place in the machine for which they are destined and to perform unfailingly their individual functions. To see the machines at work that so easily plane, bore, grind, and mill iron and steel is a never failing source of interest.

Every effort is made in the Valley Iron Works Company machine shops to expedite the handling of the work. Each casting after it is cleaned and prepared for machining is loaded on a miniature flat car that travels from



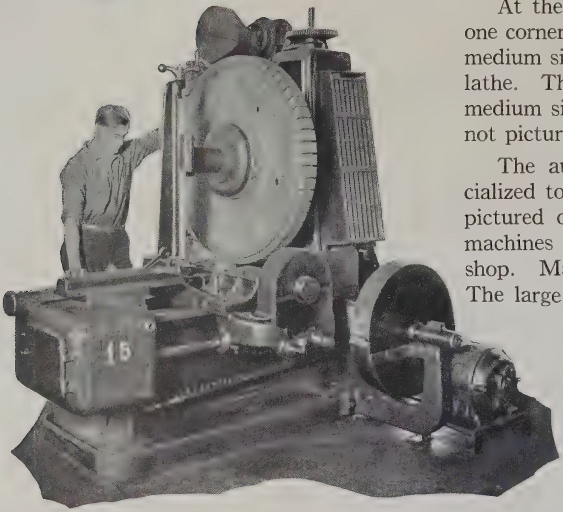
A Battery of Boring Mills. These accurate tools are used for machining pulleys, beater heads, cylinder mould spiders and other circular work from 120 inches in diameter down.



One of the Big Boys. A large 2 head planer capable of taking any part 6 feet square and 14 feet long. It is used for planing the surfaces of beater bed boxes, back falls, pump bases and cast iron vats for the wet end of paper machines.

one end of the plant to the other on a narrow gauge railroad. The casting is transported to a large layout table where the proper dimensions are there carefully marked on and the lines are layed out for the machinist to follow. The piece is then routed through the machine shop so that it travels quickly and efficiently from one machine to the other. From the layout table each piece is taken to the tool where it will first be machined.

From small drill presses and lathes to the large lathes, boring mills, planers and special machines capable of handling paper machine frames and dryers and heavy shafts, the machine shops of the Valley Iron Works Company are especially well equipped. Here the best of tools needed for the economical production of high grade paper and pulp mill machinery may be found. The accompanying illustrations picture a few of these tools and they give an idea as to the complete equipment in the Valley Iron Works Company shops.

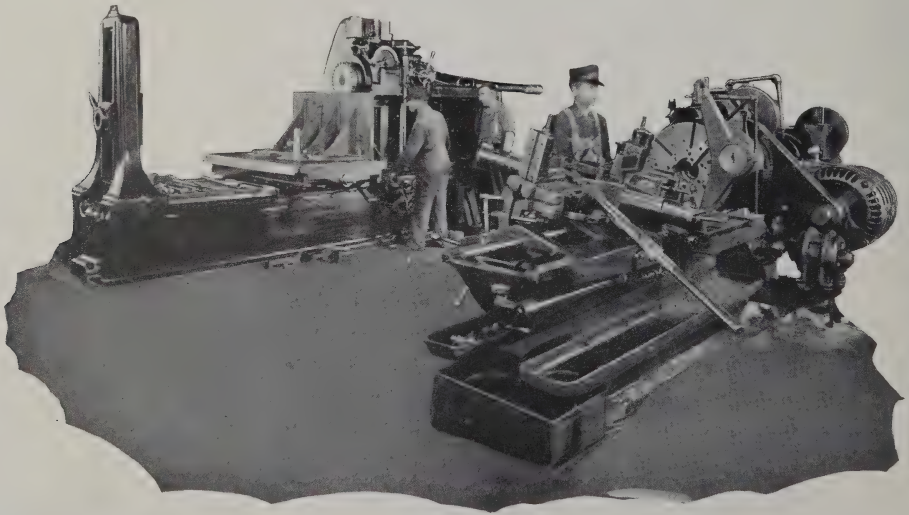


An Unusual Service. Milling slots in beater heads. This large automatic gear cutter takes parts 6 feet in diameter and is shown milling slots in a beater head. This assures a perfect fit for the bars and is very superior to the old method of making the slots in the casting.

At the beginning of this article appears a view of one corner of the machine shop containing a couple of medium sized tools, a universal boring bar, and turret lathe. They are but two of many of the small and medium sized tools to be found in our shops that are not pictured in the following pages.

The automatic gear hobber, a recently commercialized tool for cutting spur, worm, and helical gears pictured on a preceding page is one of the special machines not ordinarily seen in the average machine shop. Many others are included in our equipment. The large planers are always interesting to watch as they plane the surfaces of paper machine frames, beater posts and bed boxes, pump bases, etc., and the layman is always surprised at the ease with which the hard metal is smoothed into shape. One of the two large planers pictured herewith takes pieces 6 feet square and 14 feet long and the other takes castings 18 feet long, 7½ feet in width and 4 feet high.

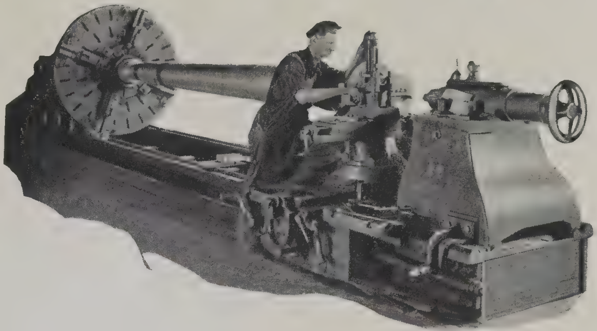
Big lathes are also required for turning out beater rolls, paper machine dryers and



A Valuable Pair. A big Gisholt turret lathe used in machining parts up to 2 feet in diameter and 4 feet in length. It is especially valuable when quantity production is desired. In the foreground a 4½ inch Giddings & Lewis boring bar for boring, drilling and milling such as centrifugal and stuff pump parts, P. A. P. A. screen and vat ends.

beater shafts. Three of these large lathes are pictured in the illustration, handling parts up to 24 feet in length and six feet in diameter.

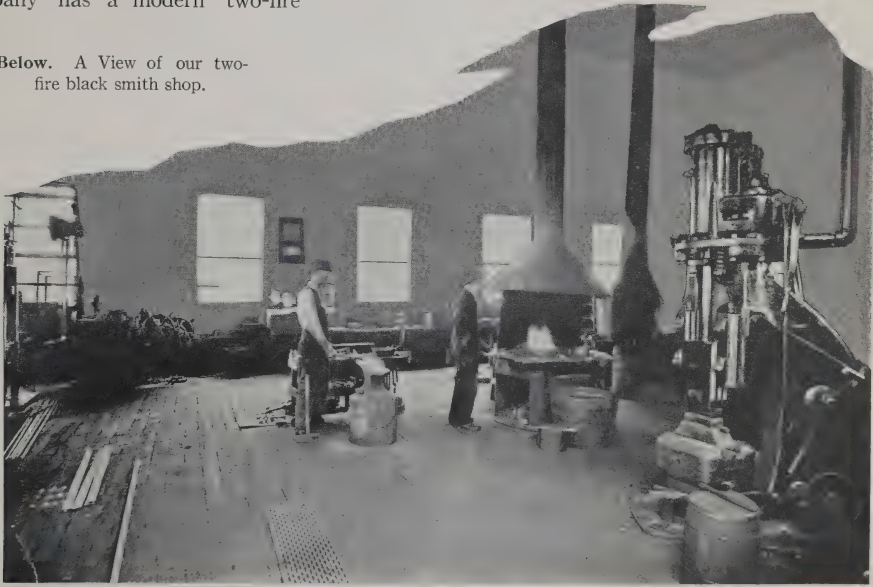
More care is taken in machining of many parts that go in to the equipment built by the Valley Iron Works Company than is usually the case. For example, one of the machines pictured on the preceding page is at work milling slots in beater heads. This method is far more satisfactory than that of making the slots in the casting. The milling assures a perfect fit for the bars and means that they can be more easily removed. Refinements of this sort add quality to Valley Iron Works Company paper and pulp mill machinery.

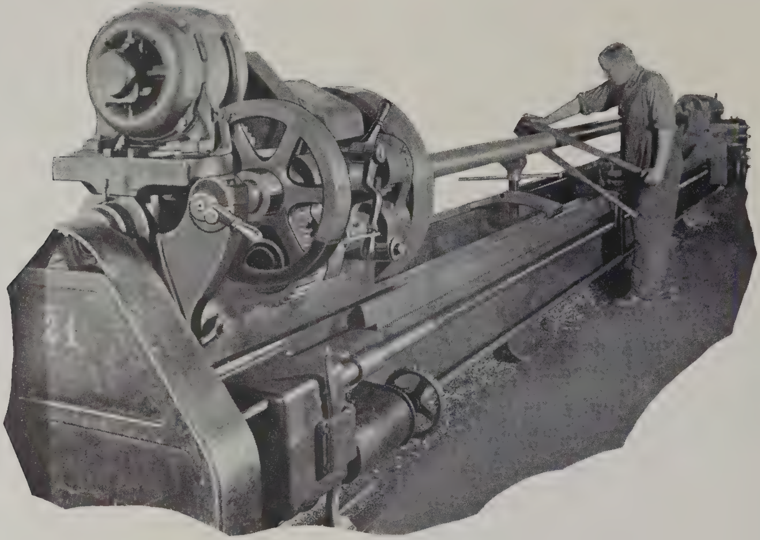


A Lathe capable of swinging a casting 6 feet in diameter and 18 feet long. It is used especially in making barker discs, turning up beater rolls and paper machine dryers.

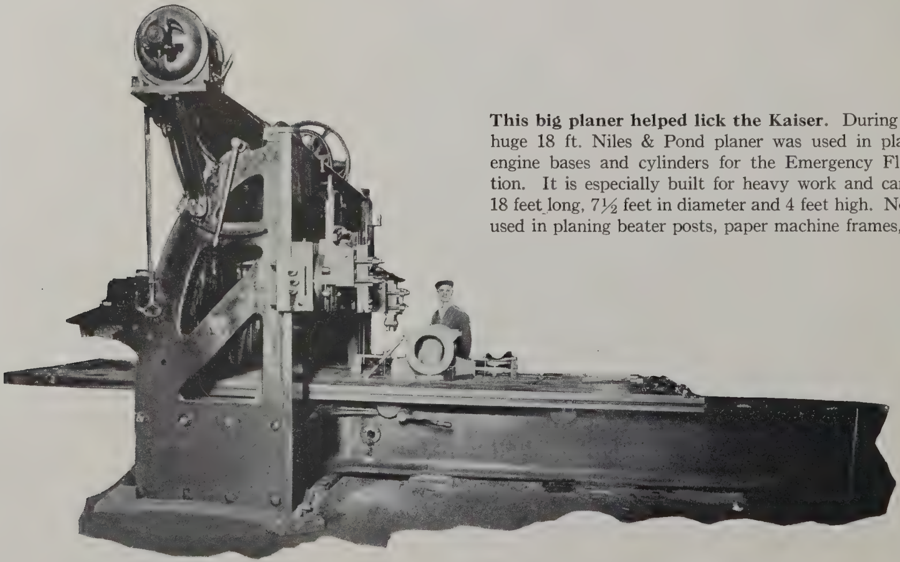
In connection with the machine shops the Valley Iron Works Company has a modern two-fire black smith shop equipped with a pneumatic-forging hammer bolt cutters, shears and bending machines and other necessary tools. A general black smith and forging service is offered paper and pulp mills and the shop is ready at all times to do prompt, efficient repair work.

Below. A View of our two-fire black smith shop.





For Long Shafts. A direct connected motor driven lathe, which handles shafts two feet in diameter and 24 feet long. It is used in machining beater and other shafts especially long.



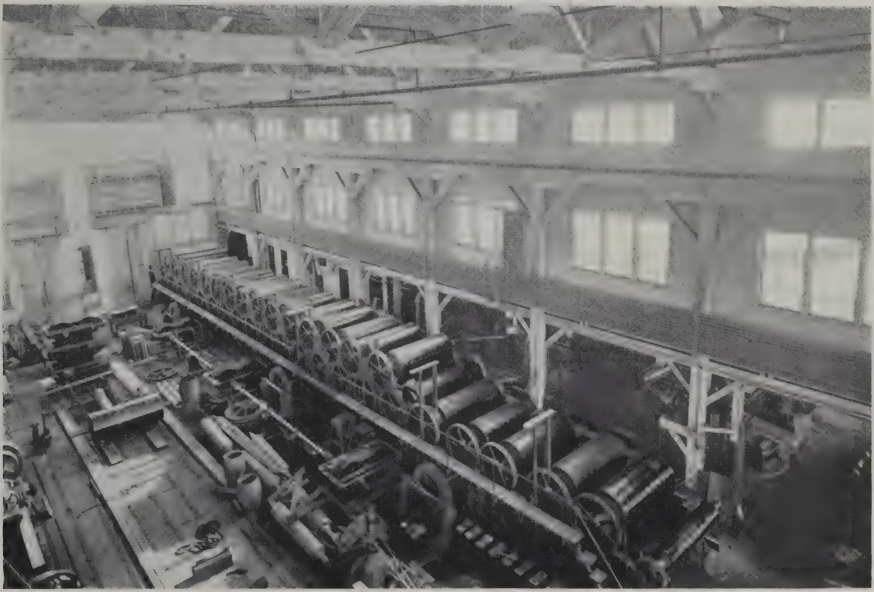
This big planer helped lick the Kaiser. During the war this huge 18 ft. Niles & Pond planer was used in planing marine engine bases and cylinders for the Emergency Fleet Corporation. It is especially built for heavy work and carries castings 18 feet long, 7½ feet in diameter and 4 feet high. Now it is being used in planing beater posts, paper machine frames, etc.

Step No. 6 Machines *Carefully* Erected

A DEPARTMENT, the value of which cannot be overestimated, is that pictured below, the erecting room in the shops of the Valley Iron Works Company. Here in this large well-lighted, airy room all machines are carefully assembled and put together and all parts fitted and marked for erecting in the plant of the purchaser. A great deal of time and money is saved in this way, as ordinary practice usually results in a great deal of this assembling work being done in the paper or pulp mill after delivery.

After the parts have been machined they are placed on flat cars of the miniature railroad and run into the erecting room where a large 20 ton electric crane, which reaches all parts of the floor, carries them to their proper place. The illustration below pictures a large cylinder paper machine in the process of being erected. At the same time it was possible to work on several other pieces of equipment so spacious is the erecting floor. In this room paper machines, wet machines, P. A. P. A. screens, beater rolls, stuff pumps, etc., are assembled.

The men who work here are aided by pneumatic hammers, electric drills and other time saving and labor saving devices. The value of this painstaking erection of machines before they are shipped cannot be overestimated. Time is saved, a perfect machine is assured even before shipment is made, and many of the expenses often encountered by manufacturers in the installation of equipment are avoided.



Putting together a paper machine on the Valley Iron Works Company erecting floor. This large, airy, well lighted building makes possible a very important erecting service.

Good wood work requires fine equipment. Our carpenters work to good advantage in this well equipped shop.

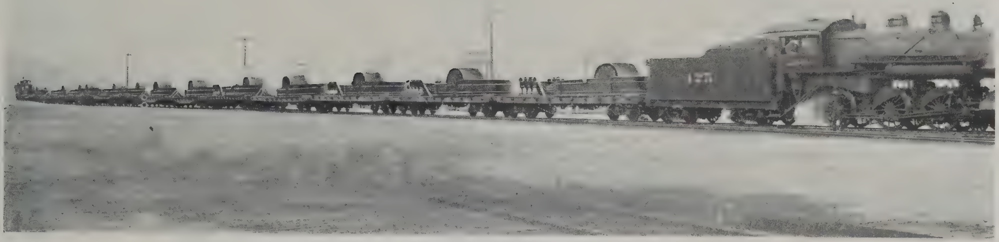
The Wood Work Erecting Floor.

The wood work erecting floor used for the erecting of wooden equipment. A large well lighted concrete floor served with a 10 ton electric crane and equipped with the latest special type of labor saving machines for sawing and routing beater bottoms and tanks. Ten to twelve beaters may be erected at one time on this floor.

Step No. 7—Woodwork *that will* Stand Wear

IF THE machines in which wood is used are to withstand years of use, only high class, carefully selected materials can be used and they must be properly handled. All the lumber used by the Valley Iron Works Company for tanks, vats, beaters, stuff chests, mixing and head boxes, etc., is the best obtainable. In our large carpenter-machine shop, a section of which is pictured above, and which is equipped with band and rip saws, joiners, planers and other special devises, the lumber is cut into shape, sawed, planed and prepared for erecting in the manner best suited to a perfect finished product. One of the special devices produces a roll filling with only two operations, insures perfect work, and hastens delivery.

In connection with the carpenter-machine shop is a large erecting floor for wood work, a section of which is shown in the accompanying illustration.

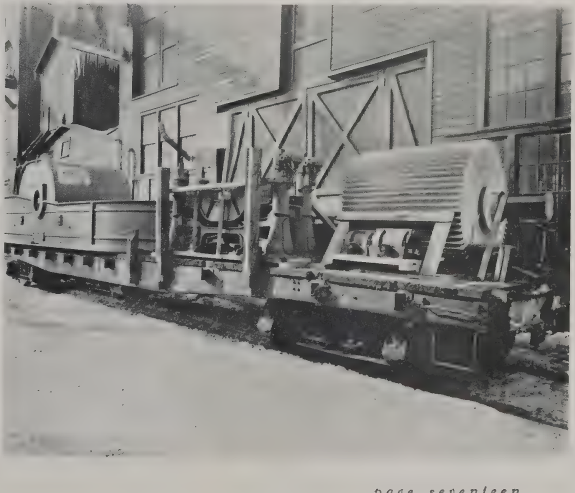


A train load shipment of beaters headed for a Pennsylvania mill.

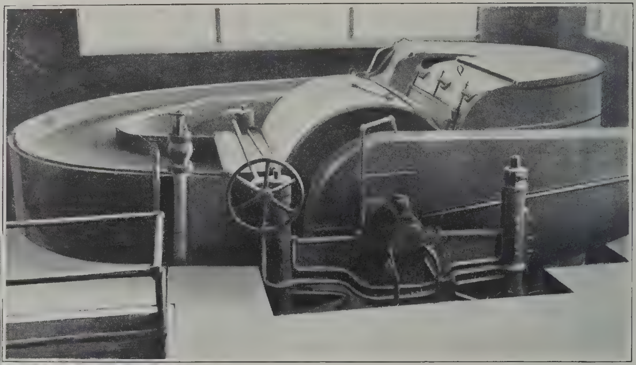
Step No. 8—Properly Loaded *for* Shipping

TEN YEARS ago machines, after they were prepared for shipment, were painstakingly loaded by hand, with the help of a block and tackle. It was an undertaking requiring much time and effort, with danger to both men and equipment. How different is the modern method now used in the Valley Iron Works Company shops. Heavy parts are picked up easily from the erecting floors by 20 ton electric cranes, which carry them out of the plant and over the car tracks, placing them on the cars and holding them in position until they are perfectly blocked and packed for either rail or water shipment. This eliminates handling and insures the proper preparation of the parts for their journey. Machines have been packed and loaded for shipment to all parts of North America and have been prepared for ocean voyages to Europe, South America and different portions of the Orient. Frequently one shipment alone requires an entire train to transport it. The illustration above shows a portion of a beater installation destined for a Pennsylvania mill. The illustration below pictures a smaller shipment and shows, above, the track on which the crane travels, and the large doors opening on to the erecting floor through which the big machines pass.

A shipment of machinery destined for a Michigan mill. It shows how parts are run out on the big electric cranes.



A Niagara Beater Installation. This beater replaces two to three Holland Beaters with a great saving in floor space and power, production remaining the same.



The installation of a large cylinder paper machine put up under the supervision of our engineers. One of the machines on which direct variable speed transmission drive was used.

Step No. 9—Erected *Under* Our Supervision *in the* Plant *of the* Purchaser

THE RESPONSIBILITY for machines manufactured in the Valley Iron Works Company plant does not change hands when the machine is packed and prepared for shipment. Generally all of the larger pieces of equipment are installed in the mill of the purchaser under the direct supervision of our engineers.

The men sent out to take charge of this work are especially trained and in many cases remain until the machine is not only erected, but is running properly. On other machines such as the Niagara Beater, if desired, a special call is made after the machine is set up and has been running for some time. During his visit, our representative is able to find whether or not all that is possible is being obtained from the machine and to make suggestions for improvements.

Purchasers of equipment built by the Valley Iron Works Company have found that our guarantee of quality has a real and definite meaning.

A Few Users *of* Valley Iron Works Company Machines

Ford Motor Co.
Eastman Kodak Co.
U. S. Gypsum Co.
Johns-Manville, Inc.
Sears-Roebuck Co.
Barrett Company
Certain-Teed Products Co.
General Chemical Co.
Kimberly-Clark Co.
Hammermill Paper Co.
International Paper Co.
Allied Paper Co.
Cornell Wood Products Co.
Upson Co.
Scott Paper Co.
Oregon Pulp & Paper Co.
Columbian Paper Mills
Inland Empire Paper Co.
Marathon Paper Mills Co.
Gilbert Paper Co.
Fox River Paper Co.
Eastern Mfg. Co.
Bogalusa Paper Co.
Celotex Company
Schmidt & Ault Paper Co.
Mac-Sim Bar Paper Co.
Eddy Paper Corp.
Rhinelander Paper Company
Consolidated Water Power & Paper Co.
Chicago Mill & Lumber Company
Riverside Pulp & Paper Co.
American Box Board Co.
Minnesota & Ontario Paper Co.
Washington Pulp & Paper Co.
Hummel & Downing Co.
Hummel & Ross Fibre Corp.
Fletcher Paper Co.
Nekoosa-Edwards Paper Co.
Whiting Plover Paper Co.
Jessup & Moore Paper Co.
Union Bag & Paper Corp.
Congoleum Co.
Dells Pulp & Paper Co.
Panalyte Board Co.
Hammond Bag & Paper Co.
Bemis Brothers
Watab Pulp & Paper Co.
Northwest Paper Co.
Thilmany Pulp & Paper Co.
Paper Converting Corp.
Natick Box & Board Co.
Northern Paper Mills
Detroit Sulphite Pulp & Paper Co.
United Paper Board Co.
Combined Locks Paper Co.
Bastrop Pulp & Paper Co.
Southern Cotton & Paper Co.
E. I. Dupont DeNemours & Co., Inc.
Whalen Pulp & Paper Co. (Canada)
Provincial Paper Mills (Canada)
E. B. Eddy Company (Canada)
Sidney Roofing Company (Canada)

Paper *and* Pulp Mill Machinery Built *by* Valley Iron Works Co.

Our Thirty-five years of actual, practical experience and our modern engineering department is at your service to help you locate and overcome all difficulties connected with pulp or paper making machinery. Consultation is free of charge and without obligation on your part.

We design pulp and paper making machinery to meet any requirements; supply standard machines in any quantity, and are builders of—

- **Agitator Equipment**
- **Agitator Tanks**
- **Acid Tanks**
- **Blow Pits**
- **Niagara Beaters**
- **Holland Beaters**
- **Bleaching Engines**
- **Washing Engines**
- **Barkers**
- **Cylinder Machines**
- **Fourdrinier Machines**
- **Deckers**
- **Centrifugal Pumps**
- **Stuff Pumps**
- **Triplex Pumps**
- **Duplex Pumps**
- **Chippers**
- **Wolf Chippers**
- **Rechippers**
- **Chip Screens** (Revolving and Reciprocating)
- **Paper Shredders for old papers**
- **Paper Washers for old papers**
- **Wet Machines**
- **Roll Skinners**
- **Splitters** (Horizontal and Vertical)
- **Flat Screens**
- **P. A. P. A. Rotary Screens**
- **Valley Size Testers**
- **Allen Steam Joints**
- **Voith High Pressure Stock Inlets**
- **Bandless Beater Rolls**
- **Jordan Engines**
- **Murphy Continuous Beaters**
- **Murphy Continuous Beating Systems.**
- **Murphy Shower Pipes**
- **Murphy Stock Regulators**
- **Murphy Gate Valves**
- **Board Machines**

VALLEY IRON WORKS COMPANY

Plant: Appleton, Wis. New York Office: 350 Madison Ave.

Exclusive Export Agents

PARSONS TRADING CORP. 110 E. 42nd St., NEW YORK CITY

MEYER PRESS, APPLETON, WIS

The
BEAVER

DECEMBER 1924

Hearty Greetings
and best wishes for
Christmas
and the New Year

The BEATER

VOLUME 10 NUMBER 4

WITH grateful appreciation of all the favors received by us from you and for that priceless though intangible asset, your Good Will, which we prize beyond measure, we seek to merit your continued confidence and aim to serve you faithfully in the future.

VALLEY IRON WORKS CO.
APPLETON, WISCONSIN
New York Office: 350 Madison Ave.

December, 1924

From "Steam Power"

The Older She Gets the Bigger the Family

Better Paper *at a* Lower Cost

THE feeling of nation-wide stability and that we are entering upon an era of great prosperity came as a direct result of the November elections. Some expected the better conditions to come immediately, but those with clearer judgement knew that the change would be a gradual increase of business activity over the country as a whole, with some lines speeding up before others.

According to Babson among the first to benefit by the rising tide of business will be the producers of Direct Mail Advertising. He predicts an enormous activity in this field, which, of course, means an increased demand for paper, especially books, covers and writings. Indications point strongly to the fact that this increased production of Direct Mail Advertising will commence soon after the beginning of the year, with a greater demand for paper following almost immediately.

The mills that will benefit the most are those paying the greatest attention to quality and who are giving **the best product at the most reasonable cost,** taking for granted of course that proper merchandising effort is put forth.

The above cartoon taken from a recent issue of "Steam Power," tells a story the importance of which, in connection with the above, cannot be overemphasized. **A mill with old or obsolete equipment cannot make a quality product at a reasonable cost.** Labor costs are higher, production is less, depreciation is more rapid and more repairs with frequent shut-downs are necessary. More power is needed and other wastes develop. It pays in more ways than one to keep your equipment new and up-to-date.

During the past few years the Valley Iron Works Company has had a corps of experienced paper mill engineers and research men constantly at work devising improved paper making methods, developing new equipment and working out refinements on the machines now in use, **which would result in better paper at a lower cost.**

Some of these are described on the following pages of this booklet — equipment that has increased production, lowered costs and improved quality. In many cases the advantages gained by installing these machines have so decreased costs as to pay for the equipment in a few months.

Now — before the demand for paper has inceased, is the time to make changes in equipment, that will make possible **better paper at a lower cost.**

Read the following pages carefully. Some of the new equipment described is creating more interest in paper making circles than has been caused by machinery inovations for years. Then write to either the main office or the New York City branch of the Valley Iron Works Company, for detailed particulars regarding any or all of these machines.

The Party Dress

A little tulle, a yard of silk;
A little skin as white as milk.
A little strap—How dare she breathe?
A little cough—"Good evening Eve."

In the Business

First Little Boy: "Dr. Jones brought a little baby sister to our house last night."

Second Little Boy: "We take from Dr. Jones, too."

Two 2,000 Lb. Niagara Beaters in New Wisconsin Bond Mill

How Niagara Beaters Help

YOU know the great importance of the beating process in paper making and the need for thorough beating. It requires a definite amount of power per ton of stock to hydrate it and prepare it for the paper machine, and the amount of power expended depends on the speed and effectiveness of the beating equipment.

The efficient beater is, therefore, the one doing its work most thoroughly, in the shortest possible time with the least expenditure of total power. It stands to reason that if the stock comes under the roll ten times an hour it will not beat off as quickly as it will when it passes under the roll a hundred times an hour. A beater that gives this greater speed and at the same time beats more thoroughly is of course the more effective engine. Combine with this greater efficiency a decrease in total power consumption of from 20% to 45%, and a beater becomes an even greater factor in producing **better paper at a lower cost.**

These are the advantages offered by the Niagara Beater, one of the improved machines turned out by Valley Iron Works Company engineers during the past few years. Niagara beaters are so designed as to have a very high circulating speed. They are quiet in operation with practically no vibration and the power is so effectively transmitted to the stock, that greater and better production results on all kinds and grades of raw material.

Compact in design it takes up little floor space and as one Niagara frequently does the work of two and sometimes three Holland type engines a saving not only in space but also in motors, belting and labor always results. Add to these the facts that Niagara beaters cut down beating time and save from 20% to 45% in total power consumed and the great value of this equipment can be realized. Briefly summarized their advantages make possible **better paper at a lower cost.**

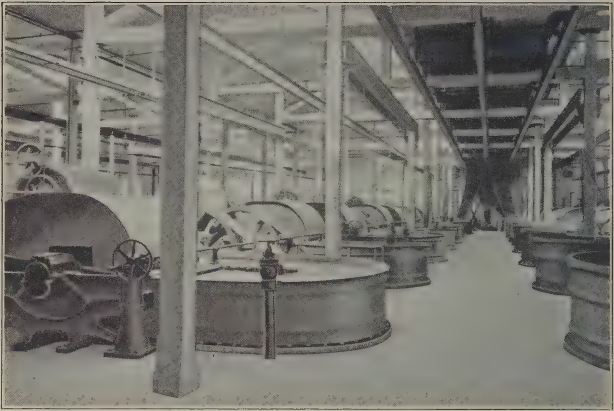
None of the preceding statements are exaggerated. Niagaras installed in mills in all parts of the United States and Canada and operating on practically all kinds of stock are every day living up to these performance promises. We know that this is true because the men operating them are willing to back us up in our statements.

A short time ago, in response to an inquiry, we referred a prospective purchaser to a manufacturer in his line using Niagaras. The reply that he received, a copy of which the writer was kind enough to send us, is printed below.

"Prior to the building of the ———————— mill we installed a Niagara beater equipment in this mill for the purpose of experimenting in the manufacture of Kraft paper specialties. Our experience was so satisfactory that six of these beaters were installed in the ———————— plant, representing their entire beating equipment. Our anticipations there were fully realized. Paper manufactured was of a very high grade, 100% M. G. Kraft sheet, testing full point to the pound and equal to the best grade of No. 1 Kraft paper manufacturered in this country. To get this result and for other reasons, it was necessary to use the best grade of dry imported kraft, which as you know, calls for maximum beating requirements. We had developed at our ———————— mills that this foreign kraft could not be handled with best results in the ordinary type of Holland beater, and with some types not at all.

In the manufacture of 25 lb. kraft for instance, at ———————— testing a point to the pound and with unusual qualities of tear and pliability, our power requirement is about 490 HP hours per ton of air dry hard imported pulp. If soft stock is handled of course this power requirement is materially reduced. We know of other concerns manufacturing kraft paper where this power requirement in the handling of similar pulp runs as high as 700 to 750 HP hours per ton.

We understand that you have manufactured kraft paper specialties and accordingly your experience should approximate ours, depending of course, upon your characteristics of manufacture"



Valley Iron Tub Holland Beaters in Large Eastern Mill

An Improved Holland Beater

UNDER certain manufacturing conditions and on certain grades of work it is advisable to use Holland type beating engines and for mills falling within these classifications our engineers have developed an improved type of engine called the Valley Holland Beater.

In working out this improved engine it was first decided to use only the best materials and the highest class of workmanship, and many special pieces of equipment were installed in our machine shops to aid in its production.

Then special features of design were worked out, that are to be found in no other equipment of like nature, and that result in unusually high efficiency, economy in operation, greater durability and more thorough beating — **better paper at a lower cost.**

Valley Holland beaters in a wide range of styles are now being made. Sizes range from 600 to 2000 pounds capacity, air dry. They are made with either wood or iron tub, tile lined or of any material desired. All of them contain the exclusive features that make these engines so popular — the Valley Bandless Roll, described elsewhere in this issue of "The Beater," the combination lighter bar and stand, the combination cast iron backfall, knife-holder and front-fall.

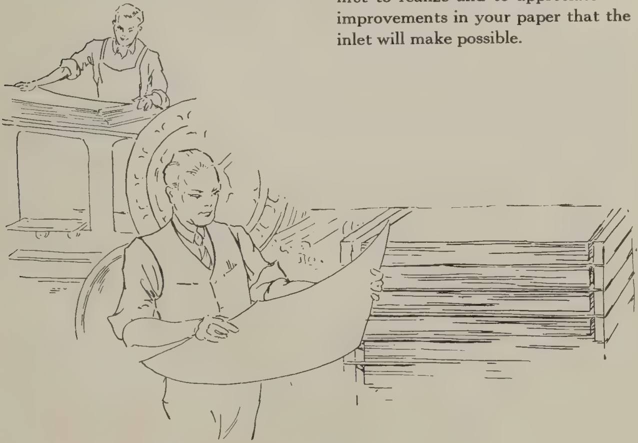
The Biggest Advance *in* Paper Making *in a* Decade

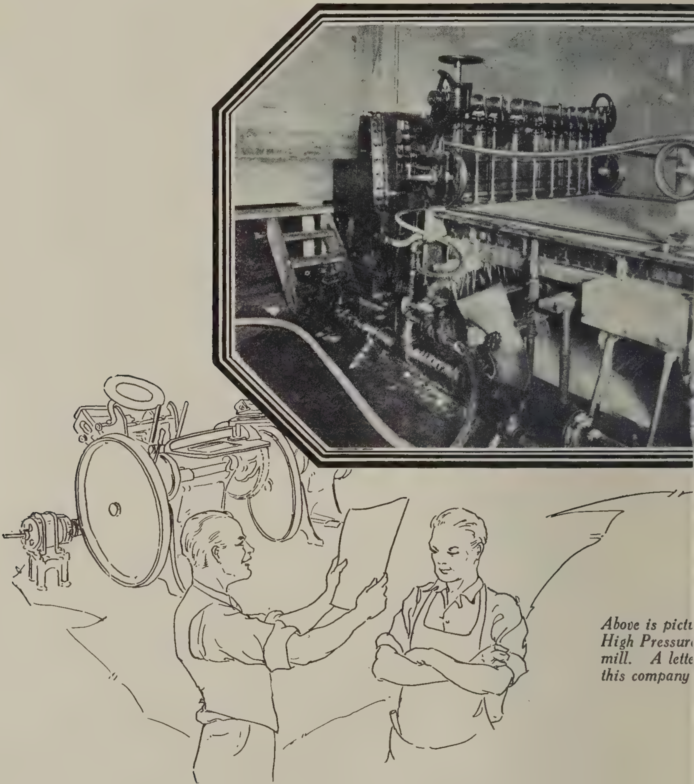
THE results were immediate. The caliper of the paper became uniform across the entire width of the machine in spite of the fact all aprons and slices had been eliminated. Lumps and foam spots disappeared and the paper took on a better formation. The stock, flowing freely on to the wire at the breast roll, came at any speed desired thus making it possible to speed up the machine so that an increase in production was at once obtained. It was evident, also, that much of the wear and friction on the wire caused by slices and aprons was no longer a factor in shortening the life of the wire.

This has been the actual experience of paper manufacturers installing Voith High Pressure Stock Inlets on their Fourdrinier machines, and it gives a very logical explanation for their calling the Inlet the biggest advance in paper making for several years.

As an indication of the rapidity with which this new piece of equipment is taking hold, twelve orders for inlets were received in our plant within the past two weeks. Seven of them were for installations on Fourdriniers in mills where the inlet was already in operation on one or more machines.

The inlet helps very materially in making better paper at a lower cost. Your printer customers will be the first to realize and to appreciate the improvements in your paper that the inlet will make possible.





Above is pict
High Pressur
mill. A lette
this company

an illustration of a Voith
tock Inlet in a Wisconsin
rom one of the officials of
quoted on the following page.

What *the* Inlet Does

1. The stock is fed onto the wire at the breast roll at any speed desired.

2. Through minute adjustments easily and quickly made, a sheet of uniform caliper can be produced across the entire width of the machine.

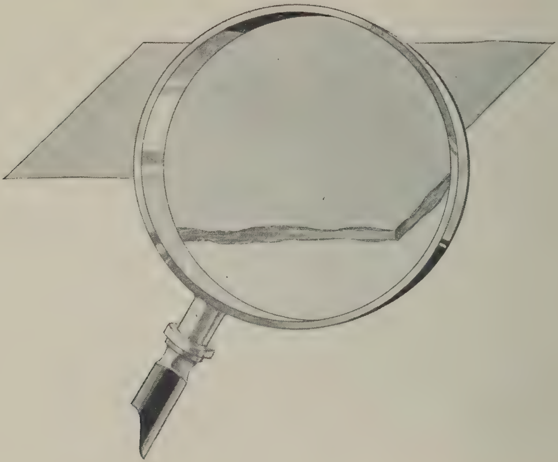
3. All foam spots and lumps are eliminated. This results in a much more perfect sheet and moreover, reduces the number of breaks and the accompanying waste of time.

4. The entire surface of the wire is given for formation purposes, which cannot help but result in better formation.

5. All slices and aprons above the wire can be removed, thus avoiding much friction on the surface of the wire, with its corresponding wear on the wire.

6. Formation of paper is bettered, and strength of the sheet is increased.

7. Time is saved in many ways. Fewer stops are required and it takes less time to start. The adjustments are so simple that they can be made quickly and readily. **With the inlet it is possible to make better paper at a lower cost.**



Your Paper Through *a* Glass

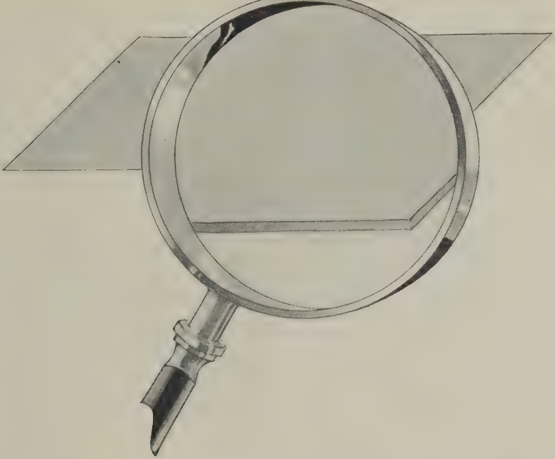
HOW would it look? Like that shown above or like that shown on the following page. There is little question as to which is the better paper or which will give the best printing surface.

Printers are paying more attention to the quality of the paper that they use than ever before. Real printers are ready to and do pay a higher price for improved quality. If you could offer them a better paper at the same or a lower price there is little question as to the sheet they'd select.

Even thickness is an important item in determining the printing quality of paper. A sheet of uniform caliper is greatly to be preferred and not the easiest thing in the world to make, especially at high speeds with an ordinary Fourdrinier machine.

Equip this same machine with a Voith High Pressure Stock Inlet and paper of uniform thickness results at once. The following extract taken from a letter written by a Wisconsin manufacturer, whose name will be furnished on request, proves this statement to be true:

"It may interest you to know that after we installed the Voith High Pressure Inlet on our No. 1 paper



machine, the variation across the sheet was reduced, average, 75% over what it was before the installation, and that this was accomplished within forty-eight hours after the installation. Our formation also is very much better and more uniform. We have sent you an order for a similar installation on our No. 2 machine."

An installation of the Voith Inlet in a Niagara Falls, N. Y., book mill on a high speed machine decreased caliper variation from 10% down to only 1%. Incidentally, it increased production on this machine 10%, and improved the formation — **a better paper at a lower cost.**

Clear Instructions

Shavetail (to Private walking down Headquarters Avenue with a cigarette in his mouth): "Why didn't you salute me."

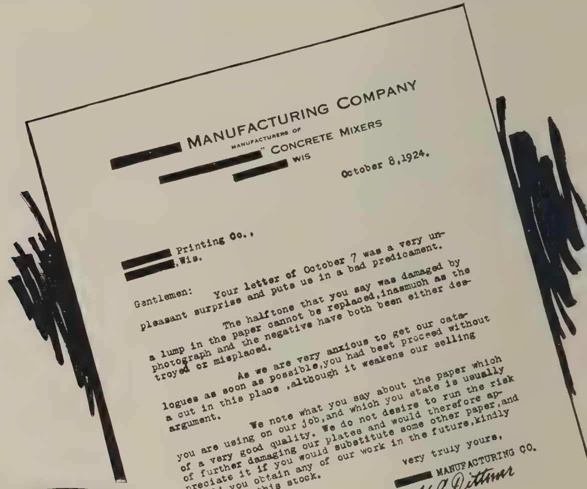
Private: "Captain said we should never salute with cigarettes in our mouths."

Pass the Pickles

Man at Telephone: "Chief Operator, please give me the number of Henry Dill and Co., 437 Main St."

Operator: "B as in Bill."

Man: "No, D as in pickle."



[redacted] MANUFACTURING COMPANY
MANUFACTURERS OF
[redacted]" CONCRETE MIXERS
[redacted] [redacted] WIS

October 8,1924.

[redacted] Printing Co.,
[redacted],Wis.

Gentlemen: Your letter of October 7 was a very unpleasant surprise and puts us in a bad predicament.

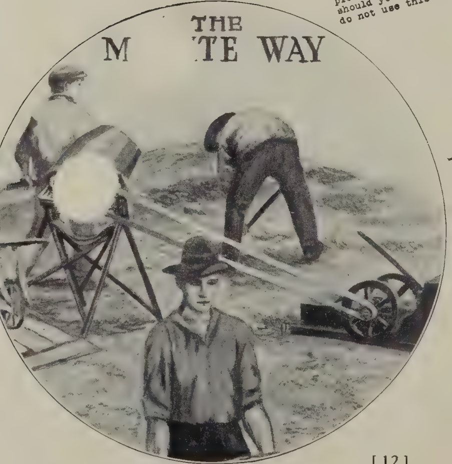
The halftone that you say was damaged by a lump in the paper cannot be replaced,inasmuch as the photograph and the negative have both been either destroyed or misplaced.

As we are very anxious to get our catalogues as soon as possible,you had best proceed without a cut in this place ,although it weakens our selling argument.

We note what you say about the paper which you are using on our job,and which you state is usually of a very good quality. We do not desire to run the risk of further damaging our plates and would therefore appreciate it if you would substitute some other paper,and should you obtain any of our work in the future,kindly do not use this stock.

Very truly yours,

[redacted] MANUFACTURING CO.
K.C. Dittmer



Lumps *in* Paper *are* Costly

ON THE preceeding page is pictured a halftone plate badly damaged by a lump in a piece of paper. With the plate is the reproduction of a letter copied from the original which gave a Wisconsin printer something to think about.

He was commencing a long catalogue run and only a few hundred impressions had been made when a lump in the paper he was using messed up the plate as shown. A letter to the manufacturer for whom the catalogue was being made elicited the reply pictured on the opposite page.

It may have been your paper he was using and your paper may have been meant when the manufacturers wrote, "On any business that you may get from us in the future kindly do not use this paper." You may take precaution but unless you do something to eliminate lumps in the actual manufacture of your product, lumps will creep in, regardless of the care you take.

Under the best conditions an incident like the above causes the printer an exasperating delay. If he is printing from electros it means making a new electro and taking his form off the press or holding the press idle until the new electro arrives. In either case some, if not an entire new press makeready is necessary, a long and expensive process.

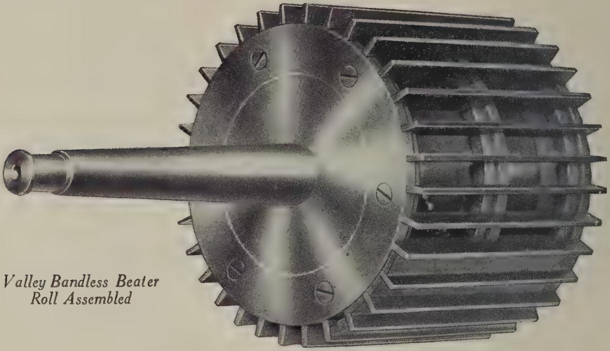
If he is printing from the original plates which is very frequently the case in even moderate sized printing plants, the delay is much more serious. It means the making of a new halftone and too often the photo or the wash drawing from which the first halftone was made is not available readily or has even been lost or destroyed as was the case in the above instance.

It is not surprising therefore that one or two such experiences will make a paper mill or a paper jobber and his stock very unpopular, with at least one printer and printers very frequently exchange notes.

The Voith Stock Inlet by eliminating lumps, make such accidents impossible. An inlet is as good as an insurance policy against dissatisfied users, as far as lumps are concerned. You have no assurance that your paper is right unless you have an Inlet. It might very easily be your paper under consideration in the letter pictured on the other page. Why not take the best precaution. Write today for a booklet telling about the Voith High Pressure Stock Inlet. It will give you full particulars regarding this remarkable new machine.

It Would be Necessary

Vital Statistics: If all of the men and women eating in boarding houses in the United States and all of the men who ate beans at mess hall tables in the Cantonments during our late argument with Germany, were placed side by side, they would reach————



Valley Bandless Beater Roll Assembled

Valley Bandless Rolls

"I WON'T go back to the old style beater roll under any consideration. That's what one mill superintendent said the other day and others have made similar remarks to our service men.

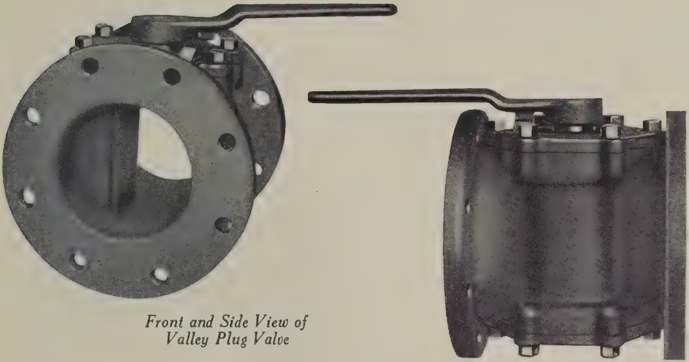
A regular portion of the equipment on all beaters turned out by the Valley Iron Works Company, the Valley Bandless Beater Roll is so made that it can be attached to any Holland type engine.

The illustration above shows its construction. Steel rings hold the bars in place, one ring at each end of the roll, driven fit and held by brass counter sunk machined screws. The heads of the roll are milled to receive the bars and are turned to fit the rings. The bars themselves are milled in a jig and are absolutely uniform. A perfect fit results, the bars are always held firmly in place and **the danger of pitching fly bars out of the roll is eliminated.**

One of the big points of advantage in the bandless roll is the ease with which it can be demounted for refilling. **One or all of the bars may be removed without taking the roll from the tub.** All that is necessary is to remove one of the end rings and drive the bar or bars 2 inches endwise. A bar so driven can then be lifted out with ease.

The roll is filled in the usual manner with steel fly bars and oak strips, cut to fit the place between the bars. The results obtained in using the roll are satisfactory in every way and the time of filling is reduced over fifty percent.

New bars for replacement purposes may be obtained at approximately the same price as the old style bars, in spite of the additional punch.



Front and Side View of Valley Plug Valve

A New, Efficient Plug Valve

LESS than a year ago the first Valley Plug Valve was put on the market and since then hundreds of them have been installed in paper mills all over the country with universally satisfactory results.

The story of their success can be easily told. **They are better and more efficient than a gate valve and cost less money.**

They cannot plug like an ordinary gate valve and are quicker in operation. A turn of the lever, shown in the illustration, is all that is required, and they can be used in connection with any paper stock pipe line.

A number of features in construction make them especially efficient. They have cast iron valve bodies and are equipped with brass plugs, thus assuring long life. The plugs are ground into position and fit tight.

They are made in nine sizes, 2, 3, 5, 6, 8, 10, 12, 14 and 16 inch.

It will prove well worth your time to obtain full particulars regarding Valley Plug Valves. State your requirements as to size and number of valves needed and we will be glad to give you full information immediately. You will be surprised at the reasonable cost connected with their installation.

One concern which recently placed its first order for Valley Plug Valves has just ordered an additional fifty. A more convincing argument for the new valve could not be presented.

Paper *and* Pulp Mill Machinery

Built by

Valley Iron Works Co.

OUR thirty-five years of actual, practical experience and our modern engineering department is at your service to help you locate and overcome all difficulties connected with pulp or paper making machinery. Consultation is free of charge and without obligation on your part.

We are builders of—

Agitator Equipment
Agitator Tanks
Acid Tanks
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Niagara Beaters
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Bleaching Engines
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Cylinder Machines
Fourdrinier Machines
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Stock Regulators
Gate Valves
Board Machines

VALLEY IRON WORKS CO.

New York Office: 350 Madison Ave.

PLANT: APPLETON, WIS.

The BEATER

CHRISTMAS NUMBER

The BEATER

DECEMBER 1922

* * *

Published by the

VALLEY IRON WORKS CO.
APPLETON, WISCONSIN

A
Merry
Christmas

A Christmas Message

To you, *who during the past year have put forth your best efforts that this great paper-making industry of ours might be advanced, we send this holiday greeting and our sincere wish that during the coming year your strength, power and pleasure in your work shall be even greater than in the last twelve months.*

A couple of years ago one of our great mid-western newspapers took for its slogan "*1921* WILL REWARD FIGHTERS". *Their slogan for this year has been* "*1922* WILL REWARD THINKERS". *The experience of the past two years of trials and difficulties has proved them right on both counts.*

You who fought during the difficult days of 1921 and have been putting care and thought into your enterprizes during 1922 now find at the opening of 1923 a better condition than has faced the country for some time. Men like Roger Babson, who closely follow the trend of affairs, say that the time is now at hand when business men "CAN SAFELY PROCEED TO PUT TO OPERATION THEIR PLANS FOR DEVELOPMENT." *The time has come when the conservative caution of the past two years can be changed into aggressive action. The slogan for the coming year could well be* "*1923* WILL REWARD BUILDERS".

To you who during the coming year will take up that torch and carry it on; to you who during 1923 will continue to work for the good of the industry; TO BUILD, NOW THAT THE TIME FOR BUILDING HAS COME, *we send our heartiest greeting, our best wishes for true success.*

Niagara *Goes to* South America

"If you build a better house, or make a better mouse trap than your neighbor, though you live in the heart of the wilderness the world will beat a pathway to your door."

USERS OF NIAGARA BEATERS will be interested to know that during the past month a shipment of two large engines was sent to South America. The story of Niagara performance has spread, until these remarkable beating engines are now in demand not only in the paper-making centers of the United States and Canada, but in South America, as well. Compa nia General de Forforos, the firm purchasing the Niagara beaters, is situated in Buenos Aires. It is interesting to note the features of Niagara that made these particular engines the one to be selected by the South American firm, from among the numerous beaters manufactured in this country.

The *great capacity* of the Niagara and the fact that, for beating a given amount of stock, *much less power is required* than is needed by a Holland type machine, proved important factors. As one Niagara will do the work of two and sometimes three Holland engines, *fewer machines are needed* to beat a given amount of stock, which results not only in a smaller initial investment in beaters themselves, and in power, equipment, belting, etc., but also a great saving in space and in labor costs.

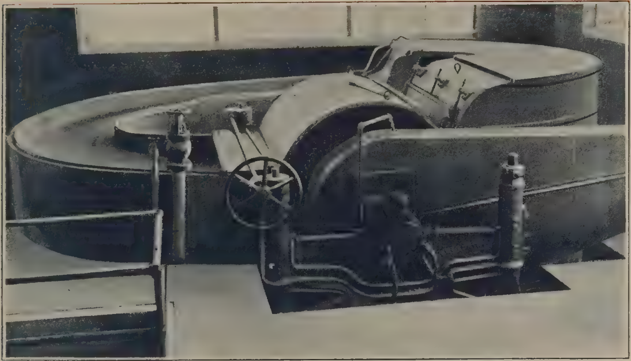
Another important consideration was the *uniformity in the quality of beating*, which of course, means better paper. In the Niagara the stock is thoroughly mixed, and all dead spots are eliminated. This is most plainly seen where color is added to the beater, for in two or three minutes the color is uniform throughout the entire pulp mass, a proof of uniform beating treatment (and incidentally very helpful in matching new shades.)

Price of course was considered, and the *very reasonable cost of Niagaras* themselves, aside from the saving in power equipment, etc., proved a powerful argument in favor of this particular engine. No beater gives a greater value dollar for dollar.

The factors which decided in favor of the Niagara may be quickly summarized. *A beater which results in the making of better paper at a much lower cost, and which, in the first place costs less money to install*, is of course the machine which a live-wire manufacturer would buy.

The Buenos Aires manufacturers wanted the best beater on the American market. That they have found it in the Niagara is proved by the experience of paper manufacturers in the United States and Canada. The following article emphasizes this statement.

Plazade Mayo, Buenes Aires



A Recent Niagara Beater Installation

Five Repeat Orders *on* Niagara Beaters *in One Month*

A MANUFACTURER once said that anything could be sold once by advertising, but if it was to be sold again to the same buyer, the article would have to live up to its advertisement.

A Niagara Beater might be sold to a paper manufacturer on the strength of our claims for it, on what we say concerning its performance, its economy in operation and its durability. That it lives up to these claims is emphasized by the fact that repeat orders for Niagara Beaters are continually coming in, and only during the past four weeks, users of Niagaras have ordered five new machines. Better recommendation than this could not be obtained.

Mr. Macauley, president of the Packard Motor Car Company, was the author of an advertisement appearing in numerous national publications during the past month, and headed "Reputation." In short, Mr. Macauley states that the man who builds and the man who buys both benefit from a good reputation. To the builder it acts as a continuous incentive, to the purchaser a strong guarantee that what he buys is worthy.

Winning a reputation, he says, is not a final goal and although a reward, it is really the beginning and not the end of endeavor.

When an individual or firm has once won recognition their standards can never again be lowered. Reputation, he says, is never completely earned but is always being earned, and is in fact a "continuing responsibility." The effort must constantly be made for higher standards and this habit of high aspirations cannot be abandoned without a resulting disaster. Reputation is a beneficent tyrant and on the other hand is "an insurance which infallibly protects those whose reason for buying is that they believe in a thing and in its maker.

A firm manufacturing products that continually win repeat orders, is a firm that has established a reputation. It is impossible, as Mr. Macauley says, for a firm who has an established reputation to permit its products to deteriorate.

Saved *from the* Waste Pile: 3½ *to* 4 Tons *of* Groundwood Pulp *per* Day

To save 3½ tons of groundwood pulp per day, stock that would otherwise be wasted; that is a proposition that would interest any manufacturer of ground wood pulp. Yet that is exactly what the new Valley Refiner will accomplish, and the few facts regrading this new machine set forth below, will be well worth the reading to anyone operating a ground wood plant.

1. The Valley Refiner takes the reject from the grinders, refines it and *saves a minimum of 3½ tons per day*, amounting annually to about 1050 tons, which at $15 per ton would total $15,750.

2. It requires but 75 horse-power to operate it, which would cost on the average of $125 per week or about $6,500 per year.

3. The net saving in dollars and cents when the Valley Refiner is used, *would total about $9,250.* Worth while considering, isn't it?

4. The Valley Refiner is made in single and twin-unit types, and can be driven by either motor or belt. The single unit type is considered in connection with the figures given above.

5. The single unit type has a capacity of 3½ or 4 tons in twenty-four hours, the twin type twice that amount.

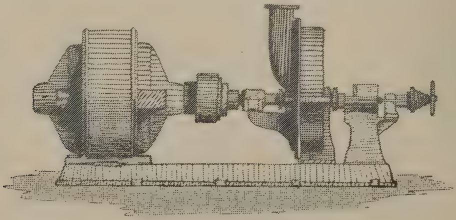
6. Refiner stones of special design are used whose cutting surfaces run opposite one another and are grooved in an unusual manner, resulting in greater efficiency.

7. The machine is so designed that all parts are readily accessible and the stones can be easily removed for sharpening.

8. The casing is made of cast iron with a heavy body wall and large discharge ways, allowing the stock to pass freely from the inlet to the stones and then to the discharge.

9. Large ring, oil water-cooled bearings are used wherever required, and each machine is equipped with large thrust bearings of ball type, placed in a housing of special design.

10. The machine can be supported by cast iron pads anchored and buried in a cement foundation or it can be equipped with a continuous cast iron bed, the best for the single unit type.



The Valley Refiner

11. Special drive features are used both when the machine is to be motor driven and belt driven.

12. The machine is strong and simple and is built so that all parts receive minimum wear. This means a longer life and fewer repairs.

The full particulars regarding the Valley Refiner will prove interesting to any ground wood pulp manufacturer and will be furnished on request. A letter to either our Appleton, Wisconsin, plant or our New York office will bring more information.

* * *

Five Fingers *of* Scotch

The thrifty Scot comes in for his share of attention from the world's wits, but the following is perhaps a bit overdrawn, even for a thrifty Scot. Sandy was at the bedside of his wife, who was sinking fast. Leaving for a moment to put in a hurry call for the doctor, Sandy said: "If ye feel yersilf slippin' whin I'm awaa, Mary, blaw oot the candle."

Which reminds us of another worthy Scot, who awakening found that his spouse had passed away during the night. Running to the stairway he called down to the cook saying, "Put on only one egg, this marnin' Maria, the good mistress will no be eatin' today."

Sandy MacGregor once dropped a coin in a restaurant and the waitress seeing him searching about on the floor asked what was wrong. Sandy informed her that he had dropped two bits of change. After much difficulty the girl discovered the coin. Taking it Sandy prepared to leave, saying "Whin ye find the other, keep it for your troubles."

A Scotchman was leaving on a fortnight's business trip and called back as he left home: "Good-bye, all, and, Katherine, dinna forget to mak' leetle Donald tak' his glasses off when he's na looking at naething."

Exceeding thrift is not the only side of the Scot that the humorist finds interesting. His well known liking for strong liquor also comes in for an occasional bit of fun. The Scotch deacon found in the ditch by one of the good church members, perhaps had this in mind when he replied, "I dinna remember whether it wa' funeral or wedding, but mon, it wa' a great success."

A Stoic

It was in the little but overcrowded class-room of an East side New York public school. The teacher looked out upon a group of eager faces as she put the question:

"And now, children, can any of you tell me what is a stoic?"

Only one hand went up.

"Does only Abie Glutz know what a stoic is?"

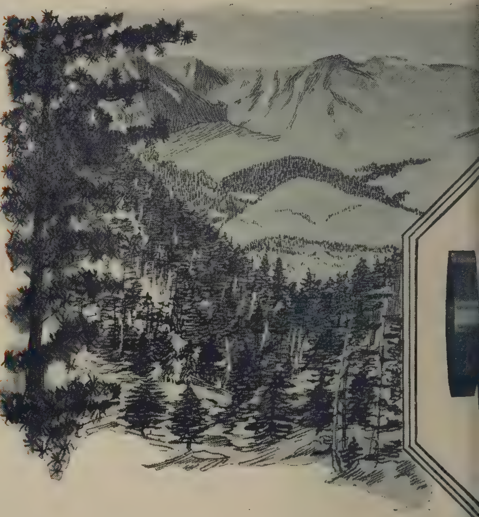
Silence

"Well, Abie, tell your classmates what is a stoic?"

"Please, teacher," said Abie triumphantly. "A stoic is a boid what brings it th' babies."

All of which reminds us of the teacher who asked one of her hopefuls, "What does two and two make?" "Two and two makes four", replied Johnny. "That is very good", said teacher. "Good!" said Johnny, "Hell, its perfect."

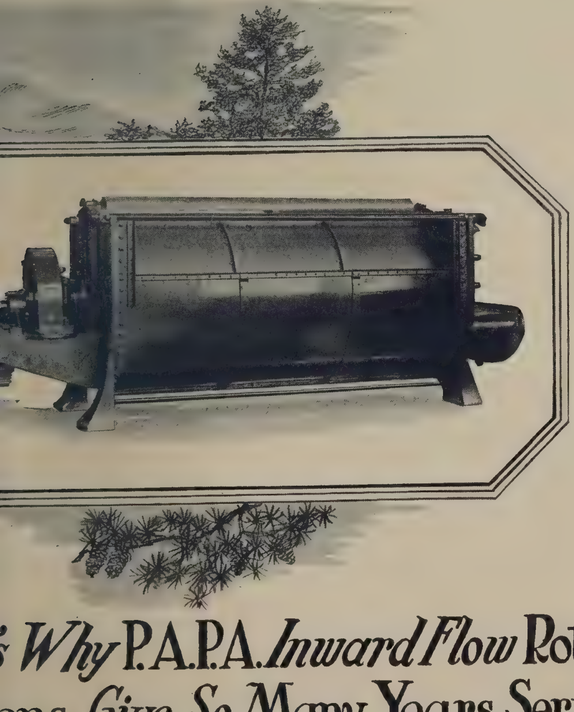
Even Pike's Peak Could



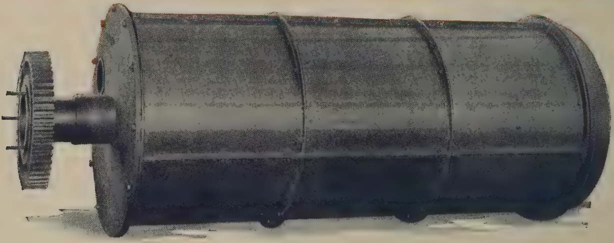
and a machine in which shaking and vibration is eliminated has a longer life

Th
Sc

t Stand Constant Shaking



s Why P.A.P.A. *Inward Flow* Rotary
ens *Give So* Many Years Service



Cylinder Construction of P. A. P. A. Screen

A Successful Inward Flow *Rotary* Screen

Every pulp and paper manufacturer has been confronted with the problem of screens for years and experience has taught him that a rotary inward flow screen should, in reason, prove most effective.

Repeated attempts were made to perfect an inward flow rotary screen, but without success until the P.A.P.A. screen was invented and put on the market. That it effectively overcomes the difficulties met with in the operation of flat screens and other rotary screens and does not possess their objectionable features is emphasized by the experience of their users. One manufacturer (name on request) writes,

"As compared with our flat screens, the P.A.P.A. makes cleaner stock, requires little attention, is simple and solid and the screens run evenly and noiselessly. The power consumed is small".

WHERE P.A.P.A. BEATS THE FLAT SCREEN

This letter, in comparing the P.A.P.A. rotary to the flat screen brings out clearly the fact that the new screen has none of the disadvantages of the flat variety so unpopular with paper makers for years.

1. P.A.P.A. Rotary screens make cleaner stock.

2. Less power is required to operate P.A.P.A. screens.

3. Due to their simple, solid construction, they do not require the attention and repairs and they do not utilize so much space, all disadvantages encountered in the flat screen.

4. P.A.P.A. screens are noiseless.

5. P.A.P.A. screens use a comparatively light but long lasting screen plate.

6. P.A.P.A. screens have an exceptionally large capacity.

WHERE P.A.P.A. BEATS OTHER ROTARY SCREENS

1. *It screens both pulp and paper,* thus proving conclusively that the greatest rotary screen difficulty in the past has been overcome. The average rotary screen is merely a mixer and does not effectively screen the stock. This is emphasized by the fact that they have not been used as pulp screens where these qualities are put to the severest test.

2. P.A.P.A. screens are the first really successful machines of the sort ever put on the market which will screen both pulp and paper.

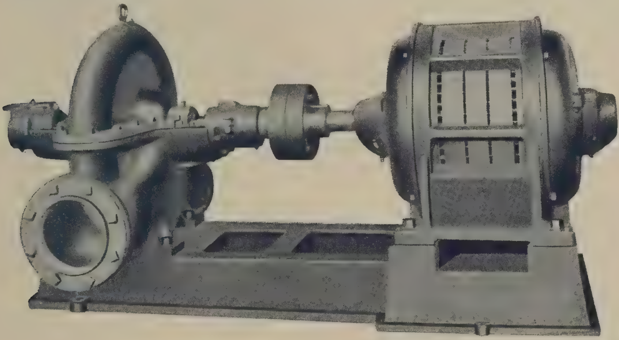
3. *It has no shaking parts.* The stock is drawn through the screen by suction, which insures a longer life and better performance. Nothing in the world will stand a constant shaking and jarring.

4. P.A.P.A. screens require no special foundation and can be placed directly on the floor.

5. Foaming is eliminated when P.A.P.A. screens are used.

6. They are so simple and strong in construction that they wear longer, need fewer repairs and less attention in every way.

Let us know what your requirements are. Our engineering department will be glad to show you in detail just where *P.A.P.A. inward flow rotary screens* will save money, time, and labor in your plant and will make better stock.



Class A Double-Suction Horizontal Split-Case Centrifugal pump

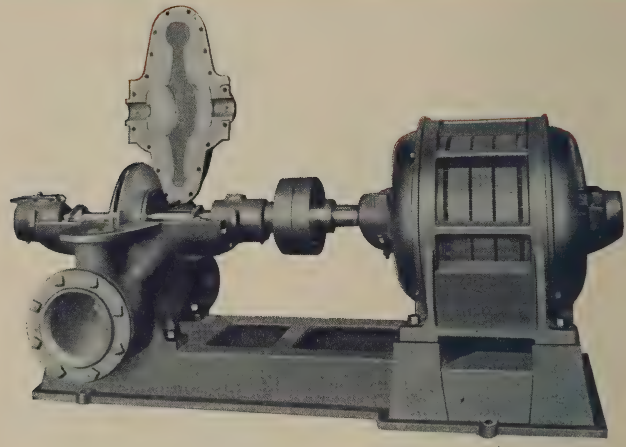
* * *

Make Careful Comparisons *Before* Buying

When buying a car, in fact when buying practically anything, comparisons are made between articles before the purchase is finished. First you select a reliable firm to deal with, then you take the specifications of the goods produced by these firms and compare them carefully, purchasing the article which is apparently the best, coming within the range of the price which you want to pay.

You should follow this same plan of comparison both in specifications and price when purchasing pumping units. Efficiency, accessibility, reliability and long life are qualities which must be built into a pump and should be expected by every purchaser of pumping units.

Paper and pulp mill men are beginning to realize the value of efficient equipment and consequent savings



The Same Pump with Case Opened

This holds true of pumps and in fact if an inefficient poorly constructed pump should be given to a manufacturer for nothing, (instead of the low price which he is ordinarily asked to pay) it would still be an expense and a liability instead of an asset. Such pumps invariably mean high operating costs.

Below are listed a brief outline of specifications of the average Valley Iron Works Company pumps. *They are not high priced, yet are quality pumps in every way, constructed of best materials with high class machine work and designed by able engineers who understand the handling of materials in the pulp and paper mills.*

During the past few months we have incorporated in our centrifugal pumps, many requirements and added much to their sturdiness, making them even more serviceable than in the past and adapting them even better to the conditions peculiar to paper and pulp mills.

The Valley Iron Works Company pump line is complete in sizes, beginning with 2" to 15" inclusive for direct connection to alternating current motor or belt drive. The motor driven types are suitable for either 60 or 25 cycle speeds. Any condition of head from 15 feet to 150 feet, and capacities from 75 gallons to 7500 gallons per minute, can be met.

For special service Valley Iron Works Company engineers are familiar with every requirement for such equipment and are prepared to design and build screw pumps as well as the latest designs of propellor pump for very low heads and large capacities.

Compare the brief specifications below with those of any other pump manufacturer and taking into consideration both quality and price you cannot help but be interested in Valley Iron Works Company pumps

THE CASING

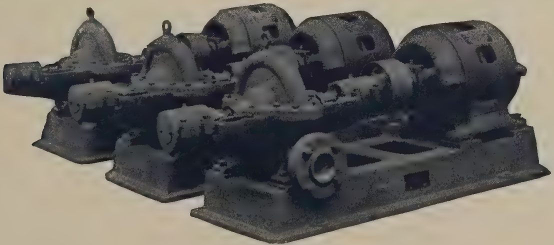
Horizontal split type, inlet and discharge piping connection on lower half, allows ease of dismantling for inspection and replacement without disturbing pipe lines. The casing is designed as a true volute, surrounding the impeller, giving to the discharged fluid the maximum of hydraulic efficiency in its path from the pump to the pipe line. On the inlet passages the same care has been expended to obtain gradual changing areas and streamline flow, so that the fluid enters the suction inlet of the impeller without shock, adding to the overall hydraulic efficiency of the pump. All suction inlets are the next larger pipe size as compared to discharge viz: 6" pump has 8" inlet—10" pump has 12" inlet etc., assuring low inlet velocities.

THE IMPELLER

The working member of a centrifugal pump is the impeller. This part exercises the greatest influence on the efficiency, and on its design and proportion depend the efficiency, at which the pump will deliver its rated head and capacity. As its name implies, the medium through which it produces its work is Centrifugal Force which is dependent on speed, utilizing the mechanical energy of a prime mover, giving the fluid potential energy. Each centrifugal pumping unit must meet definite specified conditions and the impeller must be designed to deliver the rated head and capacity at a maxiumum of efficiency The centrifugal pumps are conservatively rated as to guarantees of efficiency. We take the position that it is the better to make conservative guarantees, as compared to our test characteristics and excel them in the installation, never making guarantees of higher economies than any pump could produce under the most favorable operating conditions. Impellers are carefully cast of hard tough bronze, to withstand the scouring action of fluids at high velocities, and provided with renewable wearing rings making parts easily replaceable so as to preserve the initial efficiency after long service. The entire running assembly is carefully balanced assuring quiet and long life.

THE SHAFT

These are made of the best quality open hearth steel (not cold rolled steel) turned to true diameters. The pump shafts are of large size, for the work required, with short distance between bearings. Where they pass through the stuffing boxes they are protected with bronze sleeves, fitted on ends with steel collars to take up any end thrust in starting.



A Battery of Centrifugal Pumps

THE BEARINGS

Of the most approved type horizontal split, with a separate cast iron bushing, also horizontally split carrying the highest grade of babbitt. This design permits of changing a bearing with the least loss of time. A large oil reservoir and oil ring provide lubrication with a minimum of attention. An ingenious oil hole and cover are provided, precluding the possibility of water or foreign matter getting into the bearing, which in the past has been the cause of many burnt out bearings on pumping units, operating in places around washup hoses or where there is dripping from above.

THE STUFFING BOXES

These are a part of the casing. Unlike stuffing boxes on a piston or plunger, which depend upon tightly screwed up glands, the stuffing boxes on a centrifugal pump are not high pressure boxes. They are therefor designed with a seal ring, fed with water from the casing interposed between the hemp packing. This effectually seals the revolving shaft against vacuum, or outside pressure without setting the glands tight, obviating cutting the shaft.

THE COUPLINGS

Flexible flanged type, designed with ample factor of safety to carry the maximum load of the motor.

THE BASE PLATE

Of cast iron, heavy box section, ribbed to provide stiffness, and assure alignment of motor and pump, easily set on prepared foundations and making a neat appearance.

TAILOR MADE PUMPS

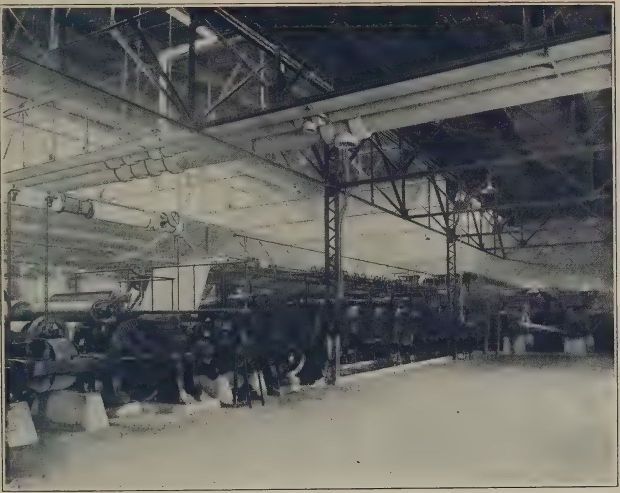
You undoubtedly have some pumping problem and we would be glad to co-operate with you in solving it. We have connected with us paper-mill engineers who are real experts in the design of pumps to fit special needs. A letter to either our plant or our New York office will put you in touch with them immediately. Let them solve your pumping problems for you, with a pump designed to fit your needs.

* * *

Yule Tide Laments

Last Christmas
I went back to the old home
And while I was there
I stopped in for a minute
To see an old friend
Who, in days of yore
Was a good old rounder
He asked me to come
With him down cellar
To see his new furnace
I went licking my chops
I always did admire his
Taste in liquors
And when we got down cellar
He showed me his new furnace
Darn the luck, anyhow.

No more around ye flowing bowle
Do good olde friends get fulle,
And toast ye dames with lovinge
names,
And toss about ye bulle.
Ye long haired law hath gummed
ye game,
Ye towne is dry as snuff
And merrie souls, beyond a doubt,
Do find it hard to go without.
Excepting me and thee old scoute,
Who never touched ye stuff.



Paper Machine in the Johns-Manville Company plant at Manville, N. J.

Starting Without Trouble

Since the last issue of the Beater two large paper machines built by the Valley Iron Works Company have been installed in the new Johns-Manville Company plant at Waukegan, Illinois. One of the machines is already in operation and in starting up the first stock that went through the vats came over the reels and winder *without a break*. No trouble of any sort was encountered. More regarding the paper machines will appear in the next issue of the beater.

A Complete Line of Paper Mill Machinery

Niagara Beaters

Valley Size Tester

Beating, Washing and Bleaching Engines

Barkers and Barker Attachments

Chippers—Re-Chippers—

Knot Screens (Revolving) and Shaker Type

Diaphragm Screens— Felt Washers

Blow-Pits

Cylinder Machines

Grinder Regulators

Patented Steam Joints

Deckers (Single and Double)

Stuff Chests (Vertical and Horizontal)

Shredders and Special Washers for Old Paper Stock

Wet Machines and Patent Roll Skinners

Bronze, Semi-Steel, Lead and Iron Castings

Pumps: Centrifugal and Stuff

Acid Tanks

P. A. P. A. Rotary Screens

Pulp Refiners

Bandless Beater Rolls

Valley Iron Works Company

Plant: Appleton, Wisconsin
New York Office: Room 613, 350 Madison Ave.

Export Agent; Parsons Trade Corp., New York City
Western Representative; Pacific Coast Supply Co., Portland, Ore

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The BEATER

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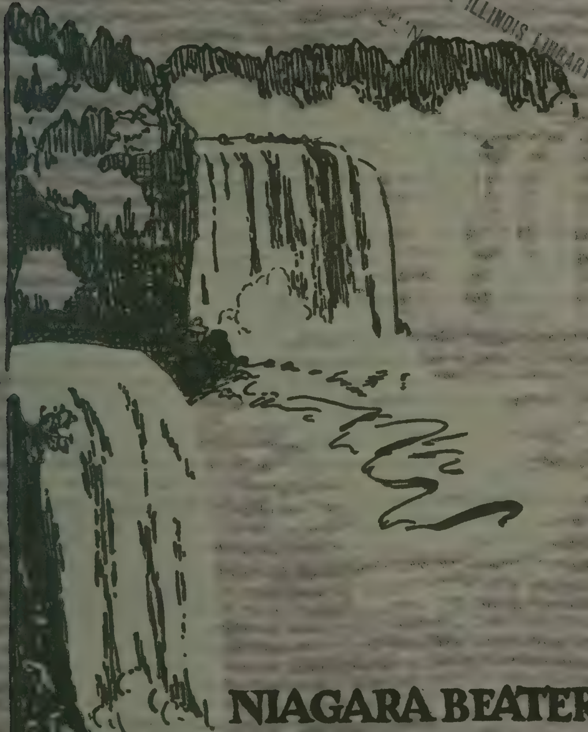

NIAGARA BEATERS

for Space-saving. Pages 8-9

The BEATER

June Number

Published by the

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Appleton, Wisconsin

Plant: Appleton, Wisconsin
New York Office: 350 Madison Ave.

Learning from the Dinosaurus

THERE is a vast gulf of more than years between a modern manufacturer and a dinosaurus, but a valuable lesson may be learned by this same modern manufacturer when he considers the fate of the huge prehistoric reptile, that ages ago wallowed so peacefully in the warm mud of the Mesozoic swamps.

Huge, tremendously strong, more powerful than any living things since their day, scientists maintain that they became extinct as the result of a change in the structure and chemical make-up of the vegetation on which most of them lived. A little thing to exterminate such huge creatures, especially when one thinks of the smaller, weaker animals that survived periods of cataclysmic change that completely altered the formation of the earth's surface. And the secret of the strength of smaller animals lay in their ADAPTABILITY. The huge Dinosaurs were unable to change with altering conditions.

And now to connect up with the modern manufacturer. If the past is a criterion on which we can depend, and in man's experience, the future can only be judged by the past, we are at the beginning of a long period of gradual price decline. The business history of America, if plotted, would show a series of up and down curves of just about equal length, the up curves representing a 25 to 35 year period of increasing prices, the down curves representing periods equal in length showing a gradual decrease in markets.

A large majority of the business men of today have always worked on the basis of a rising market. Of course there were short periods of decreasing prices, but on the whole the trend of the market was constantly upward. They will probably for the rest of their lives operate on a falling market and it will mean that they will have to change their methods. Whether or not they survive will depend upon their **adaptability**. In a recent address given in this city, Charles Henry Mackintosh of Chicago, president of the Associated Advertising Clubs of the World, predicted that within the next 25 years over 10,000 retailers would fail, due to their inability to meet changing conditions. What is true of retailers will to a certain extent hold in connection with manufacturers.

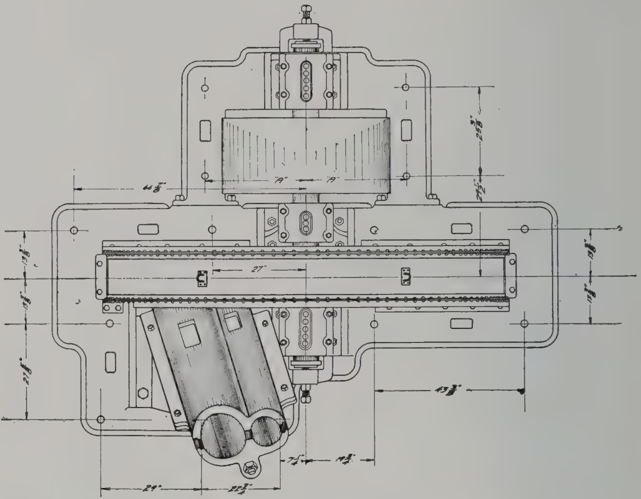
In order to meet the changing conditions manufacturers must perfect every real economy within their power. Old, inefficient equipment must be replaced with modern cost saving machinery. Far seeing paper manufacturers realize the truth of this and are already substituting more up-to-date and more efficient equipment for the obsolete machines in their plants. Such manufacturers are constantly on the lookout for improvements in equipment; for new and unique machines. That the Valley Iron Works Co. is installing equipment in mills all over the country emphasizes the fact that paper and pulp makers are finding in the Valley Iron Works Co. line those modern and efficient machines needed to meet the changing business conditions.

Read this issue of The Beater carefully. It contains much valuable information about several of the up-to-date pulp and paper making machines manufactured by the Valley Iron Works Company.

The 106-inch Improved Wolf Chipper Will Interest Pulp Makers

DESIGNED especially to handle large production; exceptionally strong and heavy; built in such a manner that the parts usually worn are protected; producing chips of a uniform size; the new Improved Wolf Chipper is a machine that will help up-to-date pulp manufacturers increase production and maintain uniform quality.

The disc rotates with great momentum, overcoming the resistance offered by the wood without effort, and reducing vibration to a minimum. A new spout design which can be made single or double, the round type of



Plan View of 106" Chipper

construction which has proved to be the most efficient for handling pulp wood, an entirely new arrangement of the chipper disc which insures a uniform size of chips, are a few of the unusual features which make the Wolf Chipper a real innovation. Read carefully the following details regarding the new machine and judge for yourself whether or not it possesses unusual merit.

A Special Spout Design

The special spout design of the Improved Wolf Chipper can be built either single or double type. When the single large spout is used, allowance can be made for an opening 18 inches in diameter for large wood. The double spout gives two openings, one 9 inches, the other 14 inches in diameter, to receive different sizes of wood. Both styles are made of cast iron with chilled throats which give necessary hard edge at this point, thus reducing wear. The construction is such that the sharpening, necessary at thirty day intervals, may be readily done, and to further facilitate it a truing gauge is furnished with every machine, to insure correct alignment during the sharpening operation.

A Bonnet with Many Improvements.

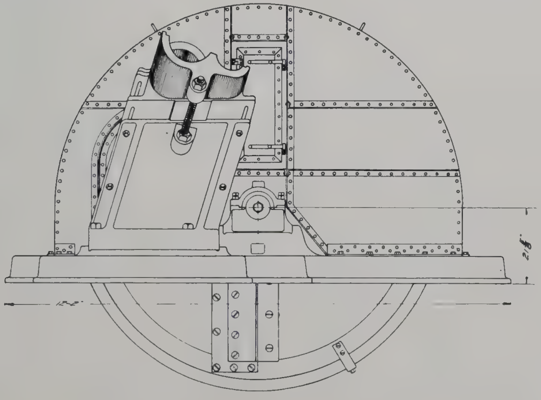
Made of heavy gauge steel plate, the bonnet of the Improved Wolf Chipper is built to fit the machine and is installed in such a manner as to give clearance at all points to the revolving disc and knives. It is firmly fastened and cannot work loose, but is so made that it can readily be lifted off the machine, should it be necessary. Its construction prevents chips from lodging between the foundations and bed directly beneath the spout, thus eliminating an exceedingly objectionable feature encountered in the past and adding much to the efficiency of the machine and the uniformity of its product. The bonnet is equipped with large doors for changing knives, and has a fill-in plate made to fit either the double or single spouts. Where two spouts are used, interchangeably, on the same machine, two fill-in plates are required, one for each spout.

The Disc an Entirely New Feature

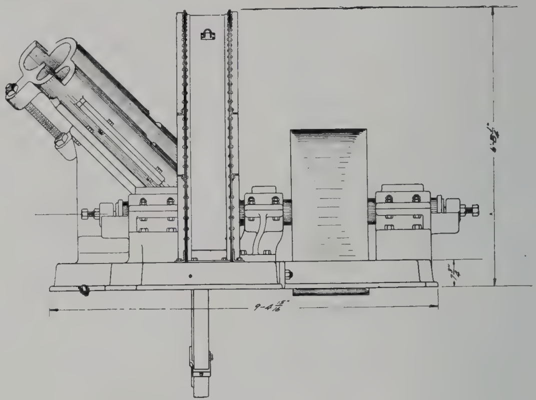
The arrangement of the chipper disc is something entirely new. It is 106 inches in diameter and is made of cast steel, annealed. It is equipped with three knives 13-16 of an inch thick, 8 inches wide and 27½ inches long, made of wrought iron with a steel cutting edge. This unique three-knife arrangement allows an interval in chipping a log, which permits it to resume its correct position against the disc after a cut has been made, before the next knife comes in contact with it. The chips are therefore of a uniform size, and the accumulation of saw-dust, necessarily occuring during the operation of a four-knife chipper is, to a great extent, eliminated.

Unique Devices Reduce Wear

The knives are fastened to a renewable cast-steel part, known as "Knife holder", and the slots in the disc, where the chips pass through after being cut, are protected with a special cast steel renewable piece called



Side Elevation---Spout Side



End Elevation showing drive and spout arrangement

a "guard angle". These pieces are so designed as to reduce the wear on the chipper disc to a minimum. The disc is counterbored and machined to receive boiler-plate segments which fit between the knife holders in such a manner as to cover the entire face of the chipper. These segments are secured to the face of the disc with rivets of proper size and so spaced as to insure a permanent fit. The disc is mounted on a shaft 7 inches in diameter, of the right length for driving the machine, and has a large hub machined for a press fit to the shaft. Scouring clips are fastened to the extreme outside edge of the disc and prevent chips from coming between the disc and the bonnet when machine is in operation.

A Chipper Bed Heavy and Properly Built

The chipper bed is made in two parts; the main casting or chipper bed proper, and the auxiliary part, called the "pulley bed-yoke", made to conform to the main chipper bed and becoming a part of it when the machine is assembled. This bed is very heavy in construction, and gives sufficient clearance to the disc at all time . It is made so that grout may be poured under it when erected.

Bearings for the Chipper—A Safety Device

The machine is equipped with three bearings, two arranged as thrust bearings and equipped with the necessary adjusting screws and bronze plates or wearing blocks, which will care for all thrust caused by the operation of the machine. The chipper may also be equipped with a thrust bearing which will break whenever a foreign substance is thrown against the disc, thus protecting the machine, should an axe or other tool be dropped in by accident.

One plain bearing is also furnished for supporting the shaft and disc near the center of the machine directly behind the disc. All bearings are of approved design, made of cast iron lined with babbitt of extra heavy construction.

The chipper is also equipped with a cast iron pulley with a twenty-five inch face and with a diameter varying in size from 48 inches to 65 inches thus offering a range to suit driving conditions in the average mill. The horsepower required to operate the machine will vary from 75 to 150, depending on the design of the spout and the size of the wood to be chipped. Experiments have shown that the Wolf Chipper does its best work when run at a speed of 175 R P M.

Write for Further Particulars

We will be glad to supply any one interested in the Improved Wolf Chipper with further information. Give our service department an opportunity to show you how this new machine can be used to advantage in your plant. They will be glad to give you this information and should you decide to install one, they will assist you in properly setting up the chipper, advising you as to the design and manner of building a proper foundation, and other details, to make sure that this improved machine will give you maximum production.

Niagara Beaters Help Land a Big Contract

HOW is it possible for a western manufacturer of high grade bonds and ledgers to compete successfully for eastern business, both in quality and price, with the mills in the east?

The contract for the paper used by the state of Massachusetts was recently given to a Western firm. The first consideration in placing the order was quality, although price also was considered. How could this western paper maker do it? One of the main reasons for his ability to make his proposition so attractive lies in his equipment.

A short time ago he displaced the 12 Nine Hundred Pound Holland type beaters with which his plant was equipped, and installed in their place four Niagara Beaters. In doing this he changed a crowded, inefficient beater room into a roomy, well arranged, efficient department. He saved in floor space, belting and power equipment, but more important, he cut his power requirements for his beating almost in half, needed fewer men to operate his beater room, turned out as much stock on fewer engines in less time, and the Niagaras gave better beaten stock, besides. Furthermore he saved himself the necessity of building a new beater room to house more engines to supply a new paper machine.

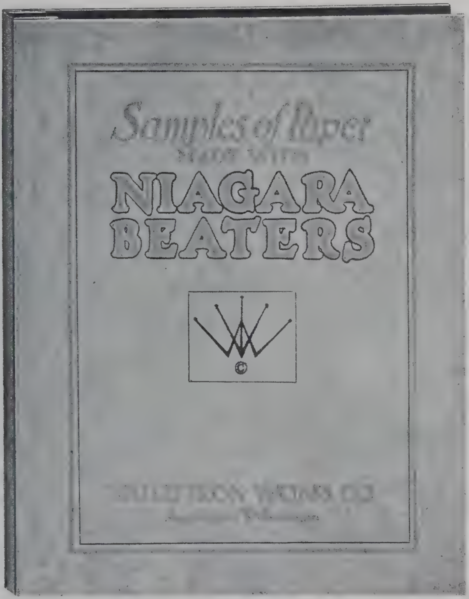
The Niagara beaters were not the only reasons for the success of this paper maker. Other points of advantage in equipment and management without question entered into it, but Niagara beaters were a big factor.

Bound for Detroit

Ford Motor Company Installs Paper Making Machinery

CAREFUL and wise buying are two important reasons for the great success of the Ford Motor Company. Before their buyers make a purchase they know that they are buying the greatest value for every dollar expended. It is natural therefore, that we should take pride in the fact, that the Ford Motor Car Company purchased Valley Iron Works Company products.

The above illustration pictures one of the shipments of paper making machinery built in our plant for the Ford Motor Company. Without question cheaper machinery could have been purchased, but the Ford Motor Company wanted more than a low price. They wanted strength, durability and better performance at a **reasonable** price and that is what they bought. What they wanted and obtained and what many other successful paper and pulp manufacturers have wanted and have obtained from us in the past, is waiting for you; not the cheapest machinery on the market, but the largest value for every dollar expended in its purchase. You are not buying paper machinery alone. You are buying the service and production that this machinery will give you.

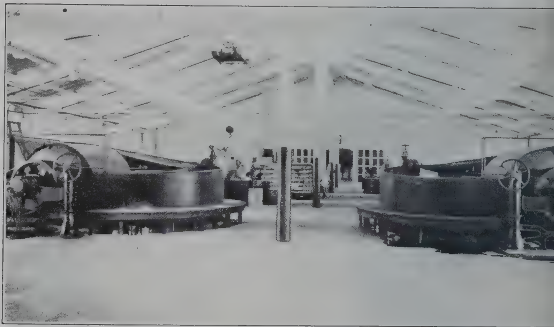


Write for this Attractive Sample Book

A BOOKLET, attractively bound in a loose-leaf cover and containing samples of all kinds of paper made with the aid of Niagara Beaters, is yours for the asking.

Glassine, tissues, sulphite and high grade bonds and writings, book papers of every description, cover stocks, wrapping, kraft, tag board, manila, bristol, liner, all are being made with Niagaras, and samples of each are included in the booklet. Some of the stocks beaten in Niagaras when finished are too heavy or bulky to send out in such a sample book, so the complete range of the new beater's possibilities do not appear. A building board ¼ inch thick in which the straw forms main base stock, is among these and another is an asbestos roofing paper.

Your sample of this interesting booklet is ready. A post card will do.



"TWO Niagara Beaters replace six Holland type engines", a strong statement to make, but nevertheless true in many cases. Of course there is a variation on different stocks, but we know of hardly an instance where one Niagara is not doing the work of at least two Holland beaters.

All of these statements can be backed up with actual proof. One manufacturer writes:

2 NIAGARA BEATERS

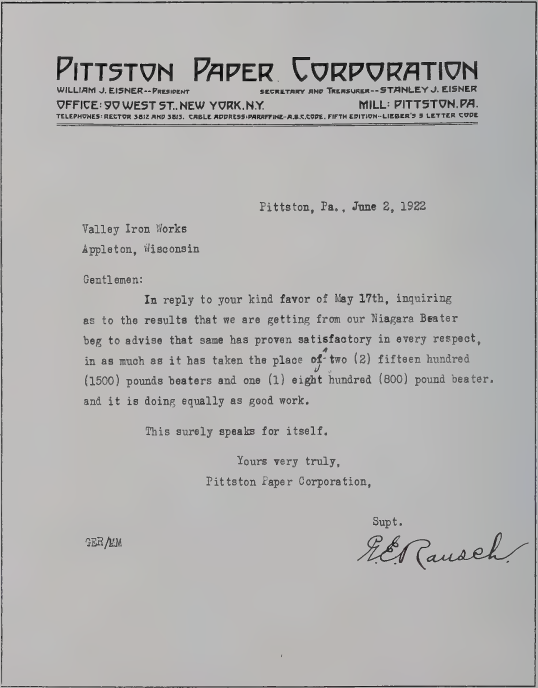
Replace 6

Holland Type ENGINES

"One two thousand pound Niagara Beater takes the place of four Holland type engines. It used to take us 7 hours with the Holland beaters, but we now find we do equally as good work with the Niagaras in 2¼ hours.

"With regard to the amount of labor saved, advise that as soon as we begin to manufacture on a normal basis, we expect to divert three beater engineers to other parts of our plant."

Another letter is reproduced in its entirety below on this page, and still others are in our files. This new beating engine saves time, power, labor, motors, belting and requires a smaller initial investment, besides offering the space saving feature em-



PITTSTON PAPER CORPORATION
WILLIAM J. EISNER--PRESIDENT SECRETARY AND TREASURER--STANLEY J. EISNER
OFFICE: 90 WEST ST., NEW YORK, N.Y. MILL: PITTSTON, PA.
TELEPHONES: RECTOR 3812 AND 3813. CABLE ADDRESS: PARAFFINE--A.B.C. CODE, FIFTH EDITION--LIEBER'S 5 LETTER CODE

Pittston, Pa., June 2, 1922

Valley Iron Works
Appleton, Wisconsin

Gentlemen:

In reply to your kind favor of May 17th, inquiring as to the results that we are getting from our Niagara Beater beg to advise that same has proven satisfactory in every respect, in as much as it has taken the place of two (2) fifteen hundred (1500) pounds beaters and one (1) eight hundred (800) pound beater. and it is doing equally as good work.

This surely speaks for itself.

Yours very truly,
Pittston Paper Corporation,

Supt.
G.E. Rausch

GER/MM

phasized above.

The value of this feature alone should not be underestimated. Crowded, inefficient beater rooms have been changed to roomy, efficient departments, with the installation of Niagaras. The manufacturer who wrote the letter quoted above, greatly improved an overcrowded beater room, and besides made unnecessary a good sized addition to his mill. This would have been needed to accommodate extra Holland beaters, required to supply an additional paper machine. By substituting Niagaras for his old Holland type equipment, he not only eliminated the need for a new structure, but even relieved overcrowding in his old beater room and still increased his production to meet his increased demand.

The illustration emphasized graphically the comparison in space required by an old style Holland equipment, and a Niagara equipment capable of handling the same production. What the Niagara has accomplished in plants all over America, it can do for you. We will be glad to supply you with full information as to just what benefits you would derive by installing Niagaras.

In an old plant you will relieve overcrowding. In a new plant, a much smaller beater room can be built if Niagaras are used. And in addition to this space saving feature, Niagaras save in every other possible manner. Such a proposition is surely worth investigating, and we urge such investigation. Were we not sure of our product we would not be so eager for close comparisons. Below are listed a number of plants in which Niagara Beaters are now being used. We feel sure that any one of them will be glad to give you information regarding their success with the engine.

No.	
1	Berkshire Hills Paper Co., Adams, Mass.
3	Bryant Paper Co., Kalamazoo, Mich
2	Consolidated Water Power & Paper Co., Wisconsin Rapids, Wis.
1	Dells Paper & Pulp Co., Eau Claire, Wis.
2	Fox River Paper Co., Appleton, Wis.
4	Gilbert Paper Co., Menasha, Wis.
1	W. C. Hamilton & Sons Co., Miquon, Montgomery Co., Pa.
1	Hummel & Downing Co., Milwaukee Wis.
1	Jessup & Moore Paper Co., Philadelphia, Pa.
7	Kimberly-Clark Co., Neenah, Wis.
1	King Paper Co., Kalamazoo, Mich.
1	Klearflax Linen Rug Co., Duluth, Minn.
1	Louisiana Celotex-Co., New Orleans, La.
1	Marathon Paper Mills Co., Rothschild, Wis.
2	Menasha Printing & Carton Co., Menasha, Wis.
1	Neenah Paper Co., Neenah, Wis.
1	Newton Paper Co., Holyoke, Mass.
1	Nuera Paper Co., Hadley, N. Y. (1,000 lb. engine)
2	Pride Pulp & Paper Co., Tomahawk, Wis.
3	Sears, Roebuck & Co., Chicago, Ill.
1	Rhinelander Paper Co., Rhinelander, Wis.
1	Scottsville Paper Box Board Co., Scottsville, N. Y.
1	Thilmany Pulp & Paper Co., Kaukauna, Wis.

6 Paper Converting Corp., Niagara Falls, N. Y.
6 Johns-Manville, Milwaukee, Wis.
1 Wausau Paper Mills Co., Brokaw, Wis.
1 Geo. A. Whiting Paper Co., Menasha Wis.
4 Whiting-Plover Paper Co., Stevens Point, Wis.
1 Waterway Paper Products Corp., Chicago, Ill.
1 Cornell Wood Products Co., Cornell, Wis.
1 Marinette & Menominee Paper Co., Marinette, Wis.
2 Minnesota & Ontario Paper Co., International Falls, Minn.
3 Nekoosa-Edwards Paper, Nekoosa, Wis.
1 Taylor Atkins Paper Co., Burnside, Conn.
1 Pittston Paper Corp., Pittston, Pa.
3 Columbian Paper Co., Buena Vista, Va.
2 Chester Paper Co., Chester, Pa.
1 Eagle Paper Co., Joliet, Ill.
1 Cellucotton Products Co., Neenah, Wis.
1 Blake & Higgins, Bellows Falls, Vt.

She Caught Everything

Little Daughter, five years old, had been sent to her auntie's on an errand. Grandma met her at the door, complied with her request and then said, "We have a new baby here," and "tell your mamma auntie is quite sick." Little daughter hurried home and opening the door informed her mother of the new baby, also that auntie was quite sick.

"Oh, is she?" said mother, "did you go in?"

"Of course, I didn't! You know I always catch everything!"

Comforting

"Doctor", said the sick man, "the other physicians who have been in consultation over my case seem to differ with you in the diagnosis."

"I know they do," replied the doctor who had great confidence in himself, "but the autopsy will show who was right."

"The Bells of Hell"

George Ham, the Canadian humorist, has published his "Reminicences of a Raconteur." Once he was operated on for appendicitis. He awoke in a darkened room and the nurse came to his side.

"Look here," he said, "it was early morning when I was operated on, and it can't be night already."

"It isn't," said the nurse, "but we darkened the room to save you from shock."

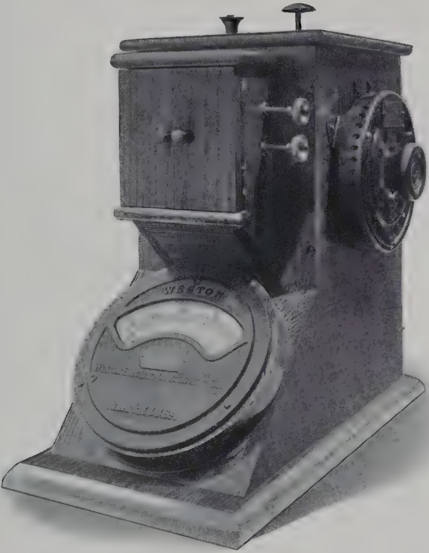
"What shock?"

"Well, you see, there was a big fire across the way. We were afraid that if you came to and saw the flames you might think the operation hadn't been successful."

Fatal.

Mable (at picnic):—"Oh, there's an ant in my coffee! Will it hurt it?"

Valeria: "Hurt it? My gosh, woman it'll kill it."

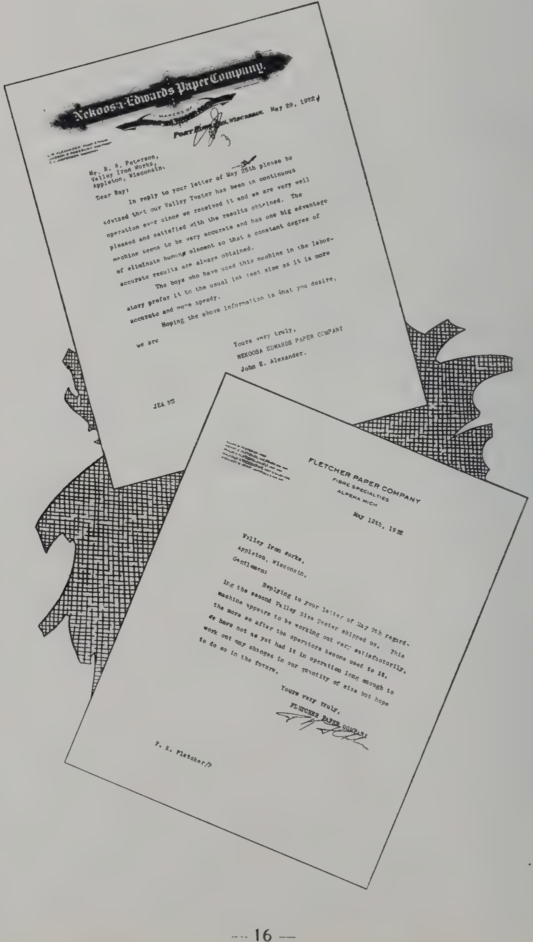


The Valley Size Tester

The Valley Size Tester is Accurate and Simple

AN INNOVATION, recently put on the market, the Valley Size Tester has already proved its worth and is now looked upon as a necessity in every well equipped paper mill laboratory. The success which it is meeting is emphasized by the two letters reproduced on the following page. "Simple," "easy to operate", "accurate", "popular with the laboratory men", "an instrument which results in a real saving in size and alum", those are the opinions expressed in the letters received from users of the size tester.

An illustration picturing the tester in its perfected form appears above. On the next page is another illustration



Nekoosa-Edwards Paper Company.
Makers of
Port Edwards, Wisconsin.

May 29, 1922.

Mr. R. A. Peterson,
Valley Iron Works,
Appleton, Wisconsin.

Dear Ray:

In reply to your letter of May 25th please be advised that our Valley Tester has been in continuous operation ever since we received it and we are very well pleased and satisfied with the results obtained. The machine seems to be very accurate and has one big advantage of eliminate human element so that a constant degree of accurate results are always obtained.

The boys who have used this machine in the laboratory prefer it to the usual ink test size as it is more accurate and more speedy.

Hoping the above information is what you desire, we are

Yours very truly,
NEKOOSA EDWARDS PAPER COMPANY
John E. Alexander.

JEA MS

FLETCHER PAPER COMPANY
FIBRE SPECIALTIES
ALPENA MICH

May 12th, 1922

Valley Iron Works,
Appleton, Wisconsin.

Gentlemen:

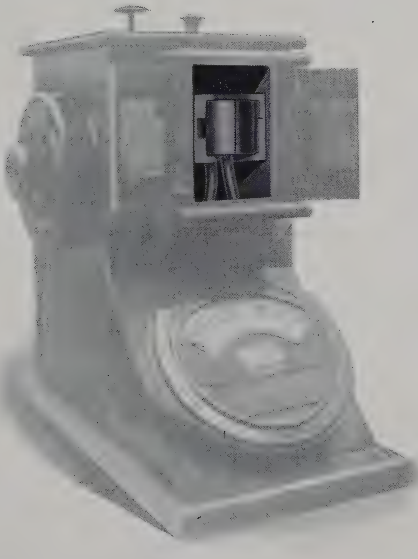
Replying to your letter of May 9th regarding the second Valley Size Tester shipped us. This machine appears to be working out very satisfactorily, the more so after the operators become used to it. We have not as yet had it in operation long enough to work out any changes in our quantity of size but hope to do so in the future.

Yours very truly,
FLETCHER PAPER COMPANY

P. K. Fletcher/P

in which the inner part of the instrument is emphasized. Its operation is an easy matter. The paper to be tested is clamped between the two halves of the cells showing in the center of the opening. The two portions of this cell are connected with a dry cell but the paper, a non-conductor, breaks the circuit. A fluid which readily conducts the current is then poured into the two halves of the cell from above and as the paper soaks up the liquid a connection is made and the current gradually increases. The length of time which is required by the current to reach its full intensity as shown on the ammeter at the bottom of the tester, gives accurate measurements of the size.

A unit of measure for sizing is thus given, and with the aid of the tester, size and alum can be kept more constant during a run and from run to run. As stated in the following letters, the new instrument is exceedingly accurate and is very easy to handle. Little time is required for a test and anyone can operate it. An interesting pamphlet which describes the instrument will be sent upon request. Your laboratory will not be complete until you have one. The following firms are using the Valley Size Tester:



Showing Cell Arrangement

Users of the Valley Size Tester

Beveridge Paper Co., Indianapolis, Ind.
Crane & Co., Dalton, Mass.
Colin-Gardner Paper Co., Middletown, O.
Dells Paper & Pulp Co., Eau Claire, Wis.
The E. B. Eddy Co., Hull, Canada.
Fletcher Paper Co. Alpena, Mich.
Kalamazoo Vegetable Parchment Co., Kalamazoo.
Newton Falls Paper Co., Newton Falls, N. Y.
Nekoosa-Edwards Paper Co., Port Edwards, Wis.
Marathon Paper Mills Co., Rothschild, Wis.
Paper Makers Chemical Co., Holyoke, Mass.
Everett Pulp & Paper Co., Everett, Wash.
Richardson Co., Lockland, Cincinnatti, O.
Tileston & Hollingsworth Co., Boston, Mass.
West Virginia Pulp & Paper Co., Piedmont, W. Va.
Kimberly-Clark Co., Neenah, Wis. (3)
Thilmany Pulp & Paper Co., Kaukauna, Wis.
Paper Converting Corporation, Niagara Falls, N. Y.
Upson Co., Lockport, N. Y.
Whiting Paper Co., Holyoke, Mass.
Watervliet Paper Co., Watervliet, Mich.
Hinde & Dauch Paper Co., Sandusky, O.
Western Paper Makers Chemical Co., Kalamazoo, Mich.
Fox River Paper Co., Appleton, Wis.
Union Bag & Paper Co., Hudson Falls, N. Y.
Gilbert Paper Co., Menasha, Wis.
Champion Coated Paper Co., Hamilton, Ohio.
W. C. Hamilton & Sons, Miquon, Pa.

A Complete Line of Paper Mill Machinery

- Niagara Beaters
- Valley Size Tester
- Beating, Washing and Bleaching Engines
- Barkers and Barker Attachments
- Chippers—Re-Chippers—
- Knot Screens (Revolving) and Shaker Type
- Diaphragm Screens—Felt Washers
- Blow-Pits
- Cylinder Machines
- Grinder Regulators
- Patented Steam Joints
- Deckers (Single and Double)
- Stuff Chests (Vertical and Horizontal)
- Shredders and Special Washers for Old Paper Stock
- Wet Machines and Patent Roll Skinners
- Bronze, Semi-Steel, Lead and Iron Castings
- Pumps: Centrifugal and Stuff
- Acid Tanks
- P. A. P. A. Rotary Screens
- Pulp Refiners
- Bandless Beater Rolls

Valley Iron Works Company

Plant: Appleton, Wisconsin
New York Office: Room 613, 350 Madison Ave.

The Rester

UNIVERSITY OF ILLINOIS
1924

Holiday Number

The BEATER

©

A Publication for Paper and Pulp Manufacturers
Published by the
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APPLETON, WISCONSIN, U. S. A.
Vol. IX No. 3

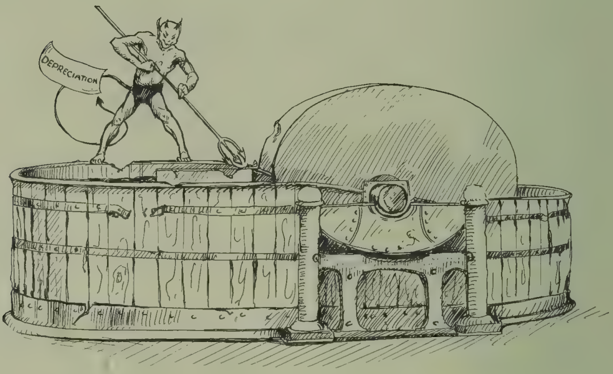
* * *

An Appreciation and a Greeting

THE HOLIDAY SEASON and the coming of the new year gives us an opportunity to express what we have felt so frequently during the twelve months just past, but seldom had an occasion or opportunity to tell—that is the sincere appreciation for our pleasant business relations during 1923.

It is a true satisfaction to feel that we have been of service and this feeling is one of the most worth-while in all business relationship. We are sure that the service we have been fortunate enough to render has been appreciated by paper and pulp manufacturers all over the country, because of a very definite and practical proof — the extensive patronage we have been enjoying during the past year. We want you at this time to know that we appreciate this patronage; that we have been enjoying the opportunities to serve you. We look forward to a continuance of these pleasant relations during 1924, and assure you at this time that we will do all in our power to make our service of more value to you than ever before.

Valley Iron Works Company



You Know Him

Here's an Enemy of Yours

Let Us Present Old Man Obsolescense.

IN THESE DAYS of efficiency experts, cost accountants, and income tax collectors, paper and pulp manufaturers have learned a good deal about Old Man Depreciation.

No matter how fine an equipment a manufacturer may have, Old Man Depreciation is continually at work on it, slowly tearing it down and causing it to lose in value, until the time comes when the machines must be replaced. Care and attention to equipment delays the work of Old Man Depreciation, but the time comes when his ravages can no longer be avoided. He has the same inevitability as taxes, Christmas shopping and the undertaker, and he is recognized and given his just due.

But Old Man Obsolescense has not received his full share of attention and he can be just as much of a spendthrift as his better known co-worker. He is more or less like our friends in Russia, not recognized but coming to a point where they can no longer be ignored, and he frequently puts in his deadly work more rapidly than Old Man Depreciation.

You have a certain machine which you have been operating for a number of years, which has of course depreciated in value, but from whose earnings you have been able to lay aside a certain amount each year for replacement, when it finally becomes necessary.

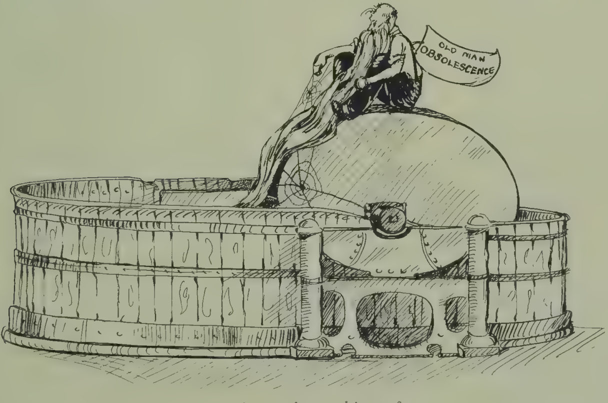
On the other hand you may have a machine that is still producing and is far from reaching the point where is it no longer useful. But a new and improved piece of equipment has been put on the market which is so far ahead of the old one and produces so much more rapidly, probably making a better product as well, that your equipment is made obsolete. On the day that this new piece of equipment is put on the market your old machine immediately drops in value—as far as its resale possibilities and its appraisal value is concerned. It moreover decreases in value in your own plant because the new machine, without a greater expenditure in manufacturing cost, can produce a better product more rapidly.

Whether your bookkeeping allows for it or not you know that you are suffering a real loss. Perhaps you are not deducting a certain amount from your profits to put aside for replacement of equipment that is obsolete. It may not appear on your books, but the loss is there and you can't get away from it.

A certain amount of obsolescence cannot be avoided. Human progress makes it necessary, but much of it can be made unnecessary if these points are considered when you buy your equipment: (1) If you carefully watch the market for new improvements, or attachments that increase a machine's efficiency (2) if you buy equipment on which the manufacturer has made an effort to provide for the attaching of future improvements.

Valley Iron Works Company has always endeavored to decrease the possibilities of depreciation as much as possible. This has been done by building our equipment a bit heavier and a bit more sturdy than is ordinarily done. We are sure of this, because time and time again in direct competition our weights have been heavier, our specifications call for more careful manufacturing, for parts machined a little better, for joints that fit a bit more tightly. This usually means a small increase in the cost of the article, but the added value is there, many times over.

But not only are we endeavoring to circumvent Old Man Depreciation as much as possible, we are making a constant effort to beat out Old Man Obsolescence as well. Our engineering staff is constantly on the alert to find new equipment which will facilitate production, and which will make a better product at a lower cost. Few



But do you know this one?

concerns in any line have produced in the past few years, the number of new cost saving and time saving machines that have been added to the list of equipment built by the Valley Iron Works Co., and few concerns have added as many refinements to machines already in existence.

Scarcely a month goes by without the addition of one or more new items to our list of products, and in the development of these improvements a constant effort is being made to protect those concerns depending on us for their equipment—to so design the new refinements that they may be added to our machines already in use.

Sometimes of course, a machine of absolutely new design is produced, such as the Niagara Beater, the Wolf Chipper and others of like nature. But when new equipment of this sort is built, it is usually worth while to discard the obsolete machines in favor of the new. Such changes are the kind that are bound to come and cannot be avoided.

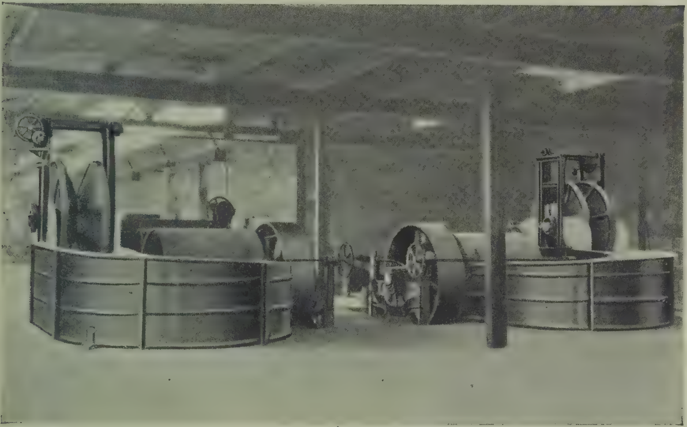
REMEMBERING OLD MAN OBSOLESCENCE READ THE NEXT ARTICLE CAREFULLY AND FOLLOW THE SUGGESTION.

We can help you avoid Obsolescence in your Beater Room

PERHAPS YOU have a beater room filled with engines that you have been using for a number of years, which still may be used for some time to come, but which are not producing as much or as good a product as some of the recently improved beaters now on the market.

It would certainly be well worth your time to make these beaters produce more and better stock, if it could be done at a reasonable price and at no greater production cost.

Perhaps we can do just this very thing for you. Sit right down and dictate a letter to us, telling us the equipment you have in your beater room, capacities, etc., or just tell us that you are interested, if you have Holland Beaters and are willing to increase your beater room efficiency. Leave the rest to us. It won't cost you a cent to find out what we can do for you, and it may give you a very pleasant and remunerative surprise. We really have something new, that will be well worth the time it takes you to find out about. All we want to know is whether or not you are interested. We'll do the rest. We aren't broadcasting it to the world as yet, but we'll be mighty glad to tell you about it.



Niagara Beaters in the Plant of the Hammond Bag and Paper Company. Wellsburg, West Virginia.

Why They Selected Niagara Beaters

THE ABOVE ILLUSTRATION pictures a recent installation of Niagara Beaters in the plant of the Hammond Bag and Paper Co., at Wellsburg, West Virginia. The engines are being used in the manufacture of rope papers and were installed only after thorough investigations had been made by the purchaser.

The Niagara Beaters were tested from every angle, careful checks and comparisons were made, operating costs and power requirements were considered and when they were installed it was because it had been discovered that they were the best, in the final summing up of results.

The points that proved the Niagara Beater to be the most desirable for the Hammond Bag and Paper Co., are those points that are putting the Niagara across in plants all over the country and that are resulting in the reorders which continually come in. They may be summed up as follows:

1. One Niagara, due to its greater speed and capacity, can do the work of two and sometimes three Holland Beaters.

2. Although Niagaras take a slightly larger motor, their capacity is so much greater that the total power used per ton of stock produced is lowered from 15% to 43%. Actual production records on different grades of stock are yours for the asking.

3. Niagaras use less floor space, and their installation has changed overcrowded beater rooms to efficient, well arranged departments.

4. When Niagaras are installed in new plants they make possible the building of smaller beater rooms and save not only in building costs, but in the costs of belting, power equipment and other installation expenses.

5. Fewer men are needed to operate Niagara Beaters. They are easier to operate and to care for, and make it possible for employees in the beater room to be transferred to other parts of the plant.

6. Niagaras beat so thoroughly and uniformly that all dead spots are eliminated and better stock results. In two or three minutes beating the color is uniform throughout the entire pulp mass, a material advantage in matching shades, and in turning out a uniform sheet.

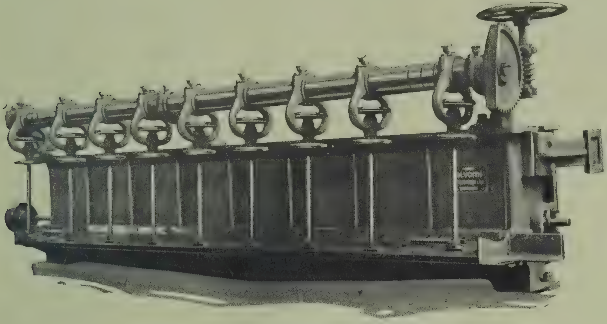
An inquiry will bring you further information regarding Niagara Beaters. The more you learn about them the greater your interest in their remarkable record will be. Write a letter today.

No Wonder He Worried

He just recieved a gift of prewar Bourbon from a friend, and he was hurrying home with a face wreathed in smiles in anticipation of the party soon to come. As he walked he frequently felt of the flask in his right hip pocket and thought of the joys before him, when suddenly, on an icy bit of pavement, his feet slid from under him, and he fell heavily on his right side. Clambering slowly to his feet he looked with horror at the results of his mishap. There, on the white snow appeared a dark stain, and as he felt for the flask in his pocket, he groaned, "Lord, I hope it's blood".

A Short Treatise On Near Beer

"Near Beer" is like the average model husband (Model: A small imitation of a thing. Standard Dict.) It was named by an able-bodied shipyard worker during the summer of 1918 aided by a frock-coated reformer with a paralyzed alimentary canal and a rotten idea of distance. It can, under certain conditions, perform a valuable service, as it has many of the characteristics possessed by dishwater and acts as an antidote for poison, etc. The satisfaction derived from drinking Near Beer is about on a par with that obtained from peeking through a keyhole with a glass eye.



The Voith High Pressure Stock Inlet.

Increasing the Speed of the Fastest Book Machine

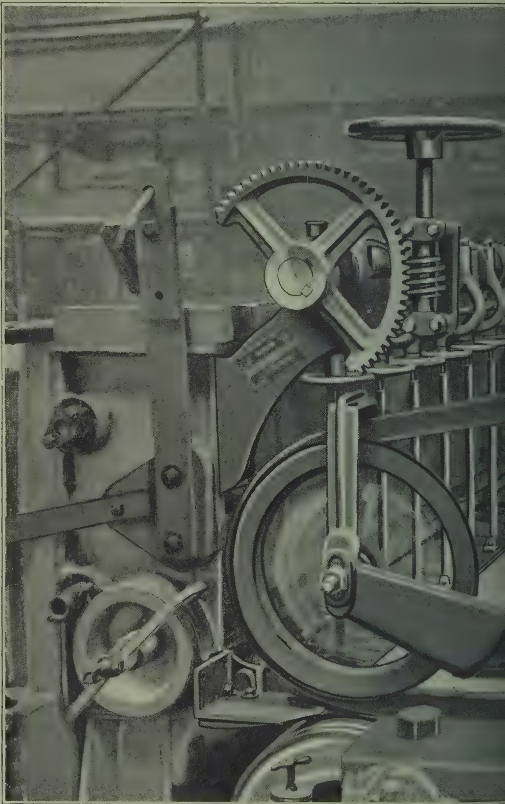
A 200 INCH trim Fourdrinier machine in a New York mill is probably making book paper at a higher speed than ony other machine in the country. In spite of this fact the speed of this machine has been increased recently 50 feet per minute, and a better sheet of more uniform caliper across its entire width, is being produced. Full particulars with exact figures can be furnished on request.

This increase in speed and improvement in the sheet was made possible when the machine was equipped with a Voith High Pressure Stock Inlet. The installation is pictured on the following page.

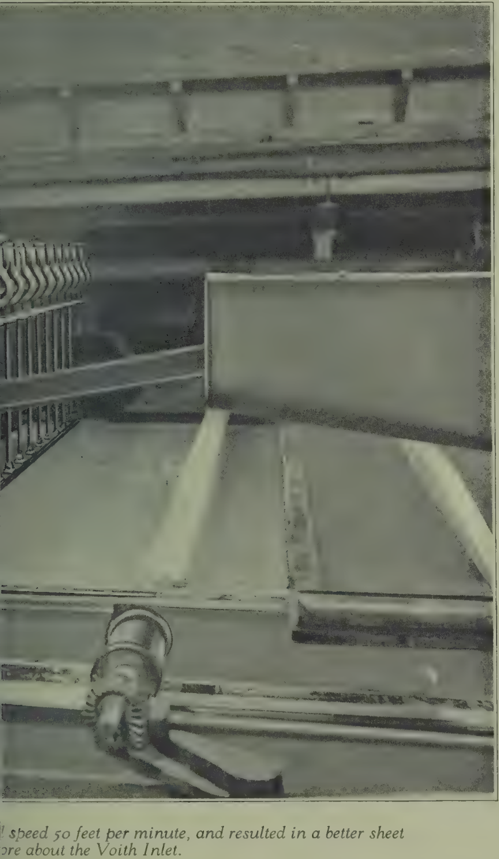
Voith Inlets can be installed on any Fourdrinier machine and make it possible to speed up the machine without pitching the wire. The flow of stock is governed by gravity and it can be fed directly and uniformly onto the wire across the entire width by adjustments, easily and quickly made.

All aprons and slices are entirely eliminated, thus preventing the wear on the wire always accompanying their use.

The final result is a sheet of uniform thickness over the entire machine, made at a higher speed—a better sheet made at a lower cost. An illustrated booklet explaining in detail the Voith High Pressure Stock Inlet will be sent on request. This new piece of equipment will easily pay for itself in a short time. In the above instance the time was less than thirty days.



The Voith High Pressure Stock Inlet on this Machine
of more uniform caliper.



l speed 50 feet per minute, and resulted in a better sheet
ore about the Voith Inlet.

Watch the Famous Products Series

IT IS WELL worth your time to watch for and read the "Famous Products Series", which appears each week over our name in the Paper Trade Journal. It makes no difference in what branch of paper or pulp manufacturing you are occupied, somewhere in the series information will appear that will be vital to you.

A number of things must be taken into consideration before a product is declared famous. In the first place it must be well and favorably known all over the country, in fact, all over the world, but before it can be known in this way it must first be a product that is manufactured of good raw materials, with the right sort of machinery and produced economically so that it can be sold at a reasonable price. It must then be backed by a real organization and a broad and expansive sales and advertising policy.

In selecting the products to be included in the "Famous Products Series", we have taken those with a world wide reputation, won through extended advertising and sales campaigns backed by an article that lives up to the promises made in the advertisements. First, we have selected products that have a broad distribution and the consumers of which are found in all localities and all walks of life, in fact, such products as are advertised in mediums like the Saturday Evening Post.

Then, we have taken certain products which are not used by the average run of consumers, but have some special field for distribution, perhaps being in their finished form carriers for some other products or even parts of other manufacturing articles are in turn given national distribution. Such products would of course be those that are outstanding in their special field and widely advertised in trade journals or other special publications.

And in connection with these famous products each time a certain vital factor is considered and this factor is one of those which go to make the product so successful. But read the series. It will be well worth your time.

Persuasion Needed

Mark Twain's famous telegram to the newspaper which had just published his obituary, "Reports of my death greatly exaggerated", has a good running mate in the following story of the timid little man who appeared one morning in a newspaper office with the query, "Do you stand back of everything you print in your paper?"

"Why—yes", answered the editor.

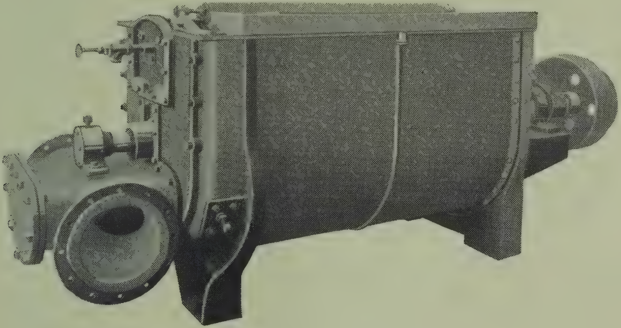
"Then" said the little man, holding up a notice of his death, "I wish you'd help me collect my life insurance."

A Good Suggestion

"Women," observed the man who had just failed to better a pair of sixes, "are funny animals."

"Yeah?" absently replied the fellow who was nursing along three treys.

"Yeah—no, I'm out of this pot. Yeah, if you want to get away with anything, just tell them the truth because they won't believe it. I told my wife I was going to play poker tonight and she pretty near laughed her head off. She knows blame well I've gone to a lecture at the Y. M. C. A., I'm such a darn liar."—*American Legion.*



A No. 1 P. A. P. A. Pulp Screen.

A Big Canadian Mill Increases Production with Less Power

WHEN a certain machine increases production from 6% to 7%, cutting power requirements 75% to 80%, that machine is making a record of which its owners need not be ashamed. In the final analysis it means more dividends.

That is exactly the record which P. A. P. A. Inward Flow Rotary Screens are making in a big Canadian mill, incidentally one of the largest pulp mills in America. Equipped with .013 cut plates the P. A. P. A. screen is giving them a daily capacity of 17.4 tons, or 1.4 tons more production than is being obtained from any other make of screen in the mill.

It is, moreover, effecting a great saving in power, for where the P. A. P. A. screen requires only 5 H. P., the other centrifugal screens in this plant are taking 20 to 25 H. P.

Further particulars regarding this installation of P. A. P. A. Inward Flow Rotary Screens and of other equally successful installations in other parts of Canada and United States will be gladly given on request. The reasons for the great success of P. A. P. A. screens are definite.

They usually increase the quantity of production, and on some grades of stock doubling and tripling the amount. One screen will frequently do the work of two or three ten to twelve plate flat screens depending on the stock.

They occupy less floor space and are easier to operate and care for. Not only do they save labor, but they conserve tremendously in power, as is emphasized by the above figures.

Aside from their cost saving characteristics, they make cleaner stock, and can be used as readily for pulp as for paper. They are noiseless in operation and inasmuch as they have no shaking parts and are very sturdily built, their wearing qualities are exceptional.

Made at first with a steel vat, they have recently been improved and the cast iron vats now used in their construction give them even greater sturdiness and wearing qualities than they possessed before.

Taken from every angle, P. A. P. A. Inward Flow Rotary screens are worth installing. The cost is so reasonable for the results obtained by their use that every paper and pulp manufacturer should investigate them thoroughly. A letter will bring added information immediately.

P.A.P.A. Screens can be obtained in the following sizes.

No. 0	4 plates
1	8 plates
2	12 plates
3	16 plates

Representative Concerns using P. A. P. A. Rotary Screens

	No. of Screens	Size of Screens
Rhinelander Pulp & Paper Co., Rhinelander, Wis.	7	No. 2 Pulp
Bastrop Pulp & Paper Co., Bastrop, La.	2	No. 2 Paper
Pride Pulp & Paper Co., Tomahawk, Wis.	1	No. 3 Paper
Poland Paper Co., Mechanic Falls, Me.	1	No. 2 Paper
Filer Fibre Co., Filer City, Mich.	2	No. 3 Paper
Marathon Pulp & Paper, Rothschild, Wis.	1	No. 1 Paper
Wausau Sulphate Fibre Co., Mosinee, Wis.	1	No. 3 Paper
Wayagamack Pulp & Paper Co., Three Rivers, Quebec	6	No. 3 Pulp
Hummel & Ross Corp., Hopewell, Va.	4	No. 2 Pulp
Central Paper Co., Muskegon, Mich.	1	No. 2 Pulp
Kimberly-Clark Co., Neenah, Wis.	1	No. 2 Pulp
Chesapeake Corp., West Point, Va.	1	No. 2 Pulp

On One Side Only

Mumps was threatening a regiment of the A. E. F., which was making preparations for its homeward journey and the medical officer was inquiring as to who were immune.

"Have you ever had the mumps?" he inquired of one dough-boy.

"Yessir."

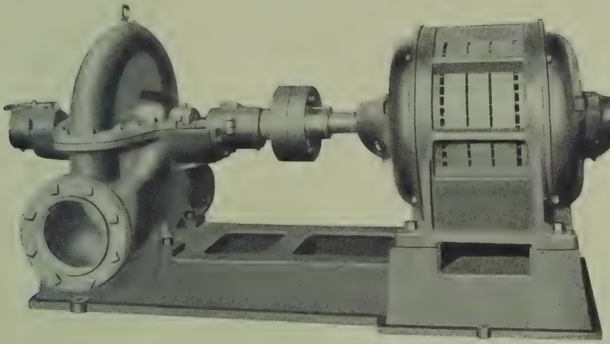
"On both sides?"

"No sir, only back in the States. But I had a good case of French itch on this side. Maybe that'll help".

All of which reminds the writer of an incident in the base hospital of one of the cantonments where he held down a corner and a typewriter in the receiving ward during the flu epidemic. Influenza patients had been crowding in by the dozens, but a lull in activities during the noon hour promised a bit of rest for the tired workers. Just as the let down came a big Alabama darky arrived with a case of mumps.

"Ah've got a bad misery in mah face, boss," he said.

"You've got the mumps" said the medic, and then in an effort to cheer up his tired crew a bit continued, "Boy—Do you want those mumps cut off or rubbed in?" The darkey turned a sickly grey, leaned heavily on the table and replied, "Boss—Ah don't want no knife on mah face, You better rub 'em in".



Centrifugal Pumps

PROBABLY no other industry is so much dependant on pumps, as are paper and pulp mills for the efficient handling of their products in the course of manufacture. The many and various uses to which pumps are put are also not duplicated in another line of business.

Pumps are used for hot and cold water, white water, stock of varying consistencies, that contain knots, long slivers such as bull-screen, and blow pit stock, clay, acids, alkali, etc. All of these uses offer special and peculiar problems, and not only must design and those characteristics affecting head and capacity conform to established data as found on the test floor, but also the materials entering in the pump construction need the careful consideration of the builders.

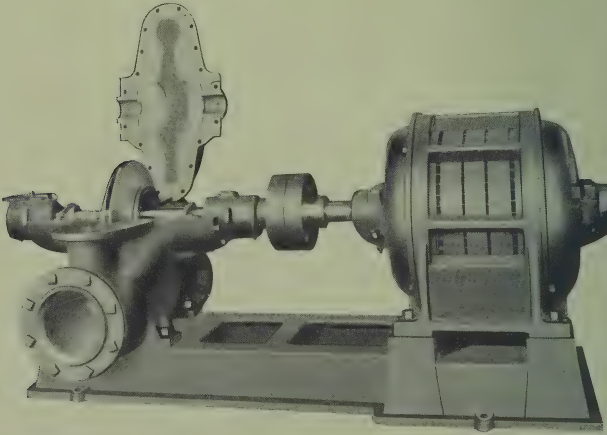
There are today many manufacturers of centrifugal pumping equipment who build units of a high class in themselves, but all of their designs are based and brought out, for handling water or clear liquids, which offer no difficulties that cannot be met in any standard pump unit. Needless to say for example that a pump designed to handle 1000 gpm. of clear water against a 50 foot. head at a fixed speed and connected to a motor, will not be suitable if used on 3% consistency sulphite stock, and therefore will not operate successfully. The capacity will fall short and serious overload will come to the driving motor, as it is not possible to obtain the same efficiencies on stock, as with a liquid which lends itself ideally to the action of centrifugal forces of a revolving impellor, while stock does not, even though of the same specific gravity. It is a mistake therefore and costly besides to place such a pump in service for a use for which it was not designed nor for a pupose it was not intended to fulfill by its manufacturers.

The design and rating of a pump for stock is one that must be suited to the individual need, by a skilled pump designer and one that is experienced in handling pulp stock. The Valley Iron

Works Company has been building paper and pulp mill equipment for over 25 years, and it is reasonable to presume that with so many years specializing in this particular field it is qualified to meet the pumping conditions of paper and pulp mills, and that its personnel is conversant with paper mill requirements.

The question of actual efficiency, particularly on thick pulp stock, is one on which many installations by so called "High Efficiency" pumps fall flat and fail to meet the acid test of operating in the mill. The unit is sold connected to a certain sized motor, whose horsepower is calculated from test characteristics as for water, some times this is assumed to be twice as high as is possible, say on 3% sulphite stock, with the result that after a few hours operation a burned out motor is on the purchasers hands. (This is actually the case, as in more instances than one, when the motor is presumed to be fused too lightly, the operators replace the fuses with heavier ones, and if it still blows, the urgent demand that the pump must operate or production be curtailed usually results in copper wire replacing the otherwise dependable fuse wire, which results in a burned out motor.)

The Valley Iron Works Company has years back passed the experimental stage of actual efficiencies obtainable on thick stock. When guarantees of efficiency are made by this company for specific conditions, the purchaser can rest assured that they represent the maximum obtainable and are a conservative figure based on actual opertion of hundreds of successful installations. The purchaser may also know that due consideration from an engineering standpoint, has been given to pipe line design and the consequent losses. He may be sure that the motor specified is of ample



power to safely drive the unit to rated capacity and head, fulfilling contract specifications, that the pump can be put in service when it arrives, so that production can proceed as anticipated and that suitable materials and workmanship have gone into the unit to give maximum life and low upkeep.

The line of pumps built by the Valley Iron Works Company is complete and ranges in size from $2\frac{1}{2}$" to 15," with which any operating conditions can be met that confront the paper and pulp industry.

The Canny Scot

Sandy MacPherson was passing the First National Bank when he met a friend, Donald MacGregor, coming out of the building.

"Have ye been depositin' some money?" asked Sandy.

"No." replied Donald. "Ye've been drawin' some out, then?" queried Sandy. "No," Donald answered. "Weel then, it was coupons ye were clippin'?" said Sandy. "I was not" said Donald. This was more than the inquisitive Sandy could stand. "What were ye doin' then," he asked.

"Fillin' ma fountain pen," was Donald's reply.

Service A la Carte

He had waited a long time for his steak and was growing hot under the collar, when the head waiter came to inquire if his order had been taken. "It has," he fumed, "but if I'd had any sense I'd have ordered by mail two months ago."

Which reminds us of another chap who was indiscreet enough to order fried chichen at a little country hotel. He'd waited an hour and finally in disgust, called the waitress. "Where's that chicken I ordered"? He said. "It will be here soon she replied," "The cook hasn't killed it yet, but she's got in a couple of nasty blows."

Noise Wins

The underpaid college professor has furnished the basis for many a story, but the following could be appreciated by the good professors themselves:

"What does the professor of Greek get for a salary?"

"Oh, about $3,000 a year."

"What does your football coach get?"

"Oh about $12,000."

"That's a pretty big difference, isn't it?"

"Yes, but did you ever hear a crowd of 40,000 people yelling their lungs out over a Greek recitation?"

A Bad Slip

Along with the above while we are on the subject of teachers, the absent minded professor who tries to mow his lawn with a carpet sweeper, was probably not half as flustered when he realized his error, as was the pretty school mam, who was about to get off a street car, just as a gentleman whom she thought she recognized as the parent of one of her pupils, got on.

"Good morning," she said, with a cheery smile.

Instantly she saw, by the quizical expression on the face of the man addressed, that she had made a mistake. Intending to correct it, she added quickly, "I beg your pardon! I thought you were the father of one of my children."

Paper *and* Pulp Mill Machinery

Built by

Valley Iron Works Co.

Our thirty-five years of actual, practical experience and our modern engineering department is at your service to help you locate and overcome all difficulties connected with pulp or paper making machinery. Consultation is free of charge and without obligation on your part.

We design pulp and paper making machinery to meet any requirements; supply standard machines in any quantity, and are builders of—

Agitator Equipment
Agitator Tanks
Acid Tanks
Blow Pits
Niagara Beaters
Holland Beaters
Bleaching Engines
Washing Engines
Barkers
Cylinder Machines
Fourdrinier Machines
Deckers
Centrifugal Pumps
Stuff Pumps
Triplex Pumps
Duplex Pumps
Chippers
Wolf Chippers
Rechippers
Chip Screens (Revolving and Reciprocating)
Paper Shredders for old papers
Paper Washers for old papers
Wet Machines
Roll Skinners
Splitters (Horizontal and Vertical)
Flat Screens
P. A. P. A. Rotary Screens
Valley Size Testers
Allen Steam Joints
Voith High Pressure Stock Inlets
Bandless Beater Rolls
Jordan Engines
Murphy Continuous Beaters
Murphy Continuous Beating Systems.
Murphy Shower Pipes
Murphy Stock Regulators
Murphy Gate Valves
Board Machines

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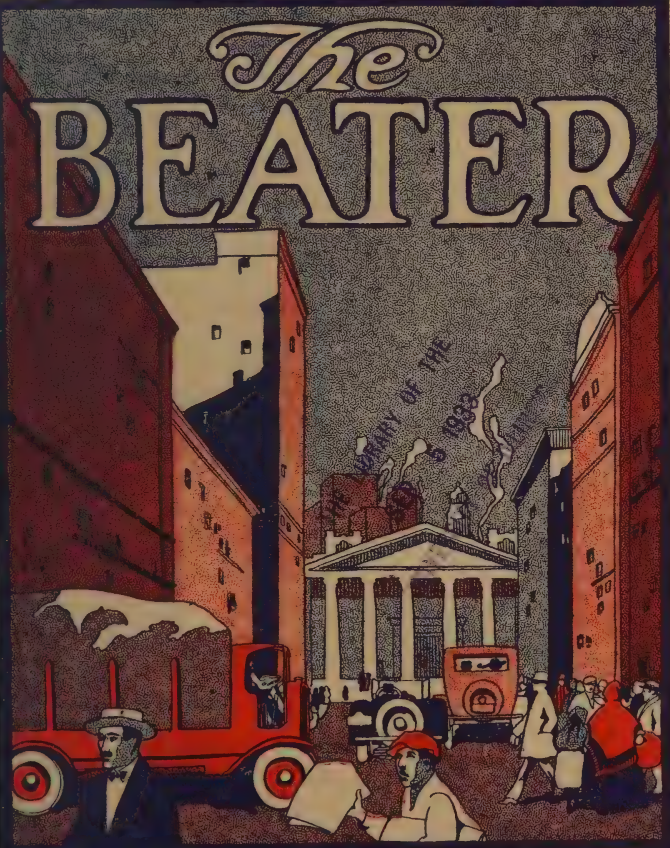
The BEATER



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Announcing

Our New York Office

The Valley Iron Works Co.
Appleton, Wisconsin.

Jan.

The BEATER

Published by the

VALLEY IRON WORKS CO.
Appleton, Wisconsin

Plant: Appleton, Wisconsin
New York Office: 350 Madison Ave.

In This Issue Read

1. Announcing our New York Office.
2. Niagaras result in a big saving in power consumption.
3. How groundwood pulp manufacturers can prevent a $17,000 annual waste.
4. Cutting costs with the improved Wolf Chipper.
5. A statement no manufacturer of Writing, Book, or Cover Papers can disregard.
6. Great paper manufacturing expert endorses Valley Size Tester.
7. P. A. P. A. Rotary Screens prove very successful in Kraft Mills.

Niagara Beaters are Power Savers

Buy The Most Economical Machine

RUSKIN once said, "All works of quality must bear a price in proportion to the time, skill, and risk attending their invention and manufacture. Those things called dear are, when justly estimated, cheapest."

Carefully designed, sturdy and strongly made of carefully selected materials and so built as to stand hard wear, Valley Iron Works Company machinery is efficient and gives years of service.

An engineering and service staff of trained experts, men who have designed paper mill machinery for years and thoroughly understand its requirements, are included in the Valley Iron Works Company organization.

The work of such men of course costs more in proportion, but this cost is reflected in greater value given. High grade materials also cost more, but are the cheapest in the long run.

A carefully organized and well directed shop organization made up of high class machinists and foundry men, working with the most up to date equipment, is also more expensive to maintain, but the work of such craftsmen means without question, higher quality.

With all of these things to offer, the products of the Valley Iron Works Company may have a little higher initial cost, but a greater value, dollar for dollar, is given you in the better product resulting. This we do not make as an unsupported statement, but we can back it up with innumerable actual examples.

If you are not acquainted with Valley Iron Works Company quality and Valley Iron Works Company service, give us an opportunity to demonstrate them to you.

If you are considering a new machine, if you desire to replace some obsolete equipment with a new piece of up-to-date machinery giving greater production, write us about it today. Let our promptness in our response be the first proof to you of our desire to serve you.

Announcing Our New York Office

Address—350 Madison Avenue.
Telephone—Murray Hill 0638.

WITH our plant situated in the middle west and with an ever increasing demand for our product in the eastern market, it became evident the first of the year that if we were to maintain the Valley Iron Works Company standard of service, it would be necessary for us to establish an eastern office.

Late in February, Mr. W. H. Burns, secretary of the Valley Iron Works Company, opened up our first eastern office in the Cambridge Bldg., 334 5th Avenue, New York City. It soon became apparent that our office space in this building was inadequate to meet the rapidly increasing demands upon it, so in May our present headquarters were opened, at 350 Madison Avenue, New York City.

Mr. Harry Bennett Joins Our Force

AT THIS time Mr. Harry Bennett, for a number of years associated with Geo. F. Hardy, paper mill engineer and architect, of New York City, became a member of the Valley Iron Works Company force, and the eastern office was placed in his charge.

Mr. Bennett is well and favorably known throughout the east as a paper mill expert of rare ability. His years of experience have made him especially competent to serve our eastern customers.

Due to the fact that his services are continually in demand, he is on the road a great share of the time, his secretary taking charge of the office during his absence. She is continually in touch with him and he can be located on short notice through her at any time.

Mr. Bennett will be glad to advise with you personally regarding any of your machine requirements. A letter or phone call to the office will put you in touch with him. He will be able to demonstrate to you thoroughly the unusual values offered in Valley Iron Works Company machinery.

Two views of the Valley Iron Works Company New York Office

In Which Monty Glass Tells A Story

OF COURSE, we aren't trying to sell you clothing, but the following bit by Montague Glass appearing in the Matthews-Northrup makeready booklet and the Warren Monthly, holds as true of paper mill machinery as it does of clothing, printing or paper, and you must have the right sort of machinery if you want to make it apply to the aforesaid paper.

"I couldn't afford to take no chances buyin' high-grade garments off a feller that is used to makin' a popular price line, because no matter how well equipped your factory would be, the trouble is a popular-price manufacturer couldn't think big enough to turn out expensive garments. To such a feller $2.00 a yard is the limit and goods at $10.00 a yard he couldn't imagine at all. An' even if he could induce himself to use stuff at $10.00 a yard, y' understand, it goes against him to be liberal with such high priced goods so he scimps the garment—the price is never right if the workmanship ain't good."

* * *

Humor

An Alcoholic Dialogue

Future generations will probably be unable to appreciate such humor as this but the days when it was sometimes found to exist are not so far behind that we cannot appreciate it. The following conversation took place on the L in Chicago not so many decades ago.

A gentlemen slightly under the influence finally negotiated a seat and found himself next to another gentleman in a similar condition. "Shay, you look as if you were drunk", hiccoughed the first one". "So do you, both of you", said the second. "Did you see me coming in"? said the first. "Yeah, I did", said the second. "Do you know me?" said the first one. "No" replied the second. "Then how did you know it was me when I come in?" said the first.

"Do you know Bill Jones", asked the first inebraite. "No, what's his name?" queried the second. "I don't know", replied the first.

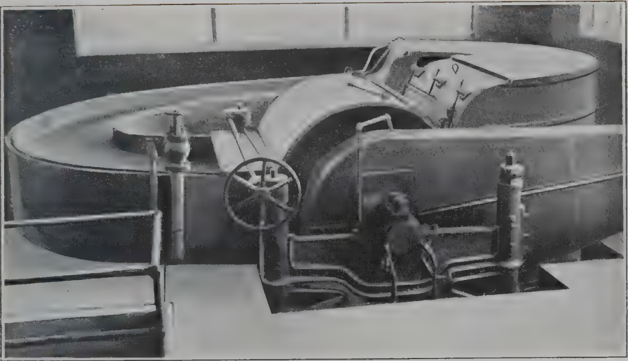
"What time is it", said the first. After fishing around in his pocket with much effort the second gentleman-in-his-cups pulled out his match box and looked at it with gravity. "It's Thursday", he replied. "Gosh, that's where I get off", said the other and he staggered to his feet.

More of the same stuff.

All of which reminds us of another little tale in which two well-corned gentlemen were riding in a Ford.

"Look out Bill, you'll have us in the ditch", said the first one.

"That's funny", replied Bill, 'I thought you were driving."



A Recent Niagara Beater Installation

Niagara Beaters Result in a Big Saving in Total Power Consumption

BECAUSE Niagara Beaters require a large motor to operate them, some manufacturers are of the opinion that they therefore consume more power. This is an erroneous idea. Emphasizing total power comparison between Niagara and Holland beaters on a wide variety of stocks, the tables which we are printing in this issue of The Beater show from 19% to 43% saving in the total power consumed, when Niagara Beaters are installed, for the same amount of stock manufactured.

Check these tables over carefully. You owe it to yourself to know what the Niagara is accomplishing in the other mills and there is no reason why you cannot duplicate their performance in your plant.

TOTAL POWER COMPARISON

FURNISH:
Ground Wood &
Bleached Sulphite for
Book Papers.

POWER INSTALLED:
100 HP for 1-2000 lb. Niagara Beater
150 HP for 2-2000 lb. Holland Beater

	2000 lb. NIAGARA			2000 lb. HOLLAND		
Operation	Time in Hrs.	Power in H. P.	Consump in H. P. Hrs.	Time in Hrs.	Power in H. P.	Consump. in H. P. Hrs.
Furnishing	1-4	60	15	5-12	40	17
Beating	1-5	100	20	7-12	70	41
Emptying	1-20	80	4	1-4	45	11
Total	1-2		39	1 1-4		69

39 HP hr. used per ton of Stock produced.

69 HP hr. used per ton of Stock produced.

Saving $\frac{69 - 39}{69}$ = 43% Saving in Total Power consumption

TOTAL POWER COMPARISONS

FURNISH:

Cooked Old papers and Bleached Sulphite for Book Papers.

POWER INSTALLED:

100 Horse Power for 1-2000 lb. Niagara Beater.

	2000 lb. NIAGARA			1200 lb. HOLLAND		
Operation	Time in Hrs.	Power in H. P.	Consump. in H. P. Hrs.	Time in Hrs.	Power in H. P.	Consump. in H. P. Hrs.
Furnishing	1-6	65	11	1-3	18	6
Beating	1-2	110	55	1 1-2	30	45
Emptying	1-12	80	7	1-6	20	3
Total	3-4		73	2		54

73 H. P. used per ton of stock produced

$\frac{54 \times 2000}{1200}$—90 H. P. hr. used per ton Stock produced.

Saving—$\frac{90-73}{90}$=19% Saving in Total power consumption

TOTAL POWER COMPARISONS

FURNISH:

Old Papers, Sulphite and Kraft for Liner Stock of Box Board.

POWER INSTALLED:

	2000 lb. NIAGARA			1500 lb. HOLLAND		
Operation	Time in Hrs.	Power in H. P.	Consump. in H. P. Hrs.	Time in Hrs.	Power in H. P.	Consumption H. P. Hrs.
Furnishing	5-12	60	25	1-2	35	18
Beating	1 1-16	90	105	2 1-3	60	140
Emptying	1-12	65	5	1-6	40	7
Total	1 2-3		135	3		165

135 H. P. hr. used per ton of stock produced

$\frac{165 \times 2000}{1500}$—220 H. P. hr. used per ton of stock produced.

Saving—$\frac{220-135}{220}$=38% Saving in total power consumption.

TOTAL POWER COMPARISONS

FURNISH:

Mitscherlich and Quick Cook Sulph. for lightweights, Waxing Papers, etc.:

POWER INSTALLED:

75 H. P. for 1-1200 lb. Niagara Beater
75 H. P. for 1-1200 lb. Holland Beater

	1200 lb. NIAGARA			1200 lb. HOLLAND		
Operation	Time in Hrs.	Power in H. P.	Consump. in H. P. Hrs.	Time in Hrs.	Power in H. P.	Consump. in H. P. Hrs.
Furnishing	1-3	42	14	2-3	30	20
Beating	1 1-12	75	81	2	55	110
Emptying	1-12	50	4	1 1-16	35	6
Total	1 1-2		99	2 5-6		136

$\frac{99 \times 2000}{1200}$—165 H. P. Hrs. Used per ton of stock produced. $\frac{136 \times 2000}{1200}$—226 H. P. Hr. Used per ton of stock produced.

Saving—$\frac{226-165}{226} = 27\%$ Saving in Total Power Consumption

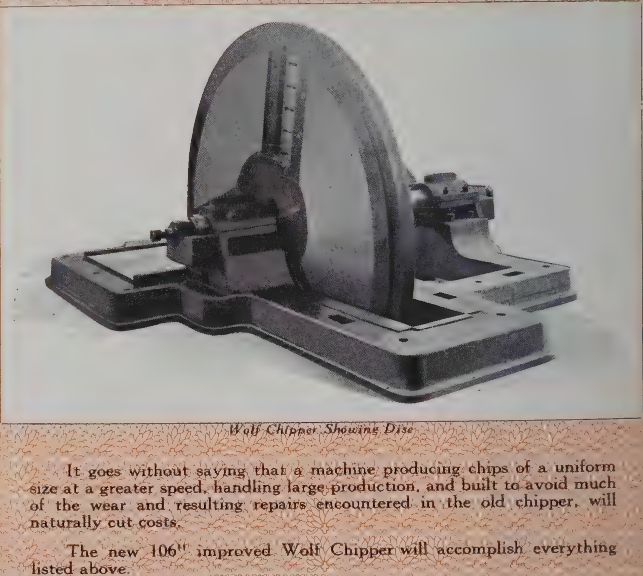
But it is not power saving alone where Niagaras prove themselves the best. Due to their greater speed and greater productive ability fewer machines are required, which mean a saving in floor space, in motor installations, belting, and plant investment. Fewer men are needed to operate Niagaras and as a result employees can be shifted from the beater room to other parts of the plant. Firms installing Niagaras are astonished at the great saving which they accomplish in every department of beater operation costs, and besides they give a better product in less time. Write for further particulars.

An Important Announcement

The cost of the Niagara Beater has fallen considerably in the past year, but in no part of its construction have cheaper materials been used. It is still the same sturdy, well-built machine, that it always has been, but through new methods of manufacturing and a decrease in the price of materials, etc., we are able to materially lower its price.

Write either our eastern office or our main office for further information regarding the Niagara Beater.

Cutting Costs with the Improved Wolf Chipper



Wolf Chipper Showing Disc

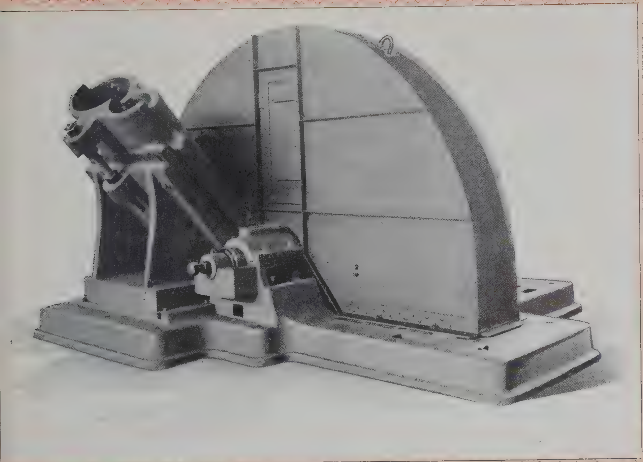
It goes without saying that a machine producing chips of a uniform size at a greater speed, handling large production, and built to avoid much of the wear and resulting repairs encountered in the old chipper, will naturally cut costs.

The new 106" improved Wolf Chipper will accomplish everything listed above.

A few of the features of this new machine are worthy of the careful consideration of every pulp manufacturer.

1. The extra heavy disk rotates with great momentum overcoming the resistance offered by the wood without effort, and reducing vibration to a minimum.

2. A new spout design which can be made either single or double is of the round type of construction, proved to be the most efficient for handling pulp wood.



Wolf Chipper

3. An entire new arrangement of the chipper disk insures a uniform size of chips.

4. The machine is exceptionally strong and heavy and is built in such a manner that the parts usually worn are protected.

5. A new bonnet design, especially heavy, gives clearance at all points, cannot work loose, but can be readily lifted.

6. Its construction prevents chips from lodging between the foundation and bed directly beneath the spout.

7. Its unique three-knife arrangement, which makes possible chips of uniform size, also eliminates most of the accumulation of sawdust.

8. The machine is fully equipped with the best bearings and a unique safety device.

9. The HP required to operate the machine varies from 75 to 150, depending on the size of the spout and the size the wood is to be chipped.

10. Full co-operation in installing the machine and assuring its maximum production will be given by our service department.

No Manufacturer of Paper Can Disregard This Statement

A SHORT time ago a statement was made in Chicago that no manufacturer of writing, book or cover papers can disregard.

Undoubtedly the greatest consumers of paper are the printers and publishers of the world. A short time ago one of the greatest of these, Thomas Donnelley, the head of the R. R. Donnelley & Sons Co. of Chicago, said that few paper manufacturers understood the needs and problems of the printer, his largest customer.

Practically any printer will verify this statement and in the past it has not altogether been the fault of the paper manufacturer. He simply did not have the proper methods of testing and manufacturing to assure a product that would meet ordinary printing requirements.

Many of these difficulties resulted from the use of converted papers, enamelled book stocks, etc., but the makers of bonds, ledgers, writings, MF and S & SC books, are fully as much concerned.

One of the greatest difficulties encountered by printers is met with in the use of sized papers.

The printer puts a form on his press and makes it ready for a paper sized and supercalendered to a certain finish. A few hundred are run off and a variation in sizing is encountered, resulting in immediate difficulty. The cuts and type in the form made ready for one sheet of paper do not appear to as good advantage on the other and often the trouble is so great as to necessitate a new makeready. An excess of size in spots makes a great difference in the affinity of the paper and ink and frequently spots heavily sized will refuse to take ink at all.

Needless to say, the mill owner whose product is standardized and whose paper can be used by printers throughout a long run without variation resulting, will be the manufacturer whose goods are the most in demand. There is no question but what the printers are more than ever demanding a better paper.

Usually the error was not one of carelessness or intent on the part of the manufacturer. It has been due to unscientific sizing. No instrument for measuring or governing the use of size was obtainable.

To meet this demand, the Valley Size Tester was recently invented and put on the market by the Valley Iron Works Company. That the printer had good cause for complaint was emphasized by the experiences of many concerns using this new instrument.

The Valley Size Tester had scarcely been put in use when letters began to arrive informing us that there must be some fault in the instrument, inasmuch as samples of paper taken at intervals during a run showed a great variation in test. As a check on these size testers, pieces of the same paper were tested on our own instrument with exactly the same result as were obtained in the mills. The instrument was not at fault. There was an actual and great variation in sizing in different parts of the same run.

Correcting the conditions that caused a variation in sizing results in a sheet of paper with much greater printibility and it does not take long for printers to find out about such paper.

The manufacturer who takes every precaution to standardize his papers is the one who will get the printers' business.

The New Valley Size Tester

Great Paper Manufacturing Expert Indorses Valley Size Tester

After making a thorough test of the Valley Size Tester, experts of the firm of Arthur D. Little, Inc., Cambridge, Mass., write, "We feel that this instrument is a decided contribution to the scientific control of the manufacture of paper."

Such an endorsement cannot help but bear weight with any manufacturer of paper.

The same story is told by the men in the mills who are actually using the instrument. "I am glad to report that the size tester is working fine," writes Mr. H. M. Eastman, chief chemist for the Upson Company, Lockport, New York.

"Our Valley Size Tester has been in continuous operation ever since we received it and we are very well pleased and satisfied with the results obtained. The machine seems to be very accurate and has one big advantage of eliminating the human element so that a constant degree of accurate results are always obtained. The boys who use this machine in the laboratory prefer it to the usual ink test as it is more accurate and speedy", writes Mr. John Alexander of the Nekoosa Edwards Paper Company, Port Edwards, Wis.

"The machine appears to be working out very satisfactorily", writes Mr. P. K. Fletcher, Fletcher Paper Company, Alpena, Mich.

Actual experiences with the Valley Size Tester prove without question its great value and worth.

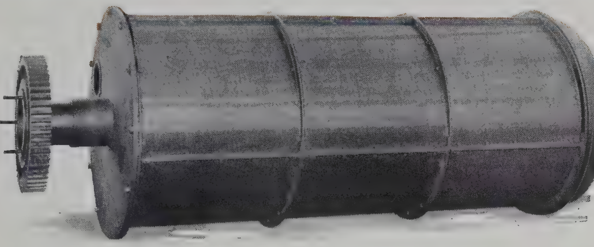
The Valley Size Tester

1. Is accurate and easy to operate.
2. Gives a unit of measure for sizing.
3. Helps to keep size constant from run to run.
4. Helps to keep size constant during a run.
5. Creates a saving in both size and alum.
6. Makes research work in size possible.
7. Can perform an average of five tests hourly, 24 hours per day.
8. Can be operated by a novice with the greatest accuracy.

Let us demonstrate to you more fully the actual saving that can be performed by this new instrument.

Write either our plant or the New York office for further particulars. It will be worth the small trouble involved, and will, we feel sure, prove to you the need of a Valley Size Tester in your plant.

The Valley Size Tester in use in a Paper Mill Laboratory



View of Cylinder Construction of P. A. P. A. Screen

P.A.P.A. Rotary Screens Prove Very Successful in Kraft Mills

USED in mills making many different stocks and working successfully everywhere, the P. A. P. A. Rotary Screen is proving especially well adapted to the handling of kraft stock. The letter reproduced below emphasizes this point.

> Messrs. The Valley Iron Works Co.,
> Appleton, Wis.
>
> Gentlemen:— Attention Mr. Burns
>
> Referring to your letter of the 10th, the writer has just returned from a visit to the.............Mills at Three Rivers where he made a full inspection of the six P. A. P. A. Screens installed there.
>
> These screens are doing very excellent work and Mr. ......, The Mechanical Superintendent, is more than satisfied with results.
>
> They have two screens on each of their Fourdrinier Paper Machines, and each screen is putting through easily 25 tons per day, and on light weight papers, where the stock is in a higher state of dilution, they would handle up to 30 tons per day. The screens are running with a drum revolution of 110 per minute.
>
> The screens are being run without tailing screens, and all shieve and dirt is taken off by the spray pipe, into the gutter over the top. They do not find it necessary to have any tailings taken off from the bottom of the vat, although provision is made for such if necessary. The cut of the plate is .024.
>
> The writer has had considerable experience in handling Kraft stock, and would have no hesitation in stating that the P. A. P. A. Screen is the most efficient that he has seen and also is low in cost of maintenance and repairs.
>
> One outstanding feature is its capability of producing such clean stock, with comparatively large cut and high capacity.
>
> Yours very truly,

(Names furnished on Request)

Screens Both Pulp and Paper.

The P. A. P. A. screen is the first really successful inward flow rotary screen to be built and is equally well adapted for screening both pulp and paper.

The screen consists of one slowly revolving (not shaking) perforated cylinder placed so deeply in a vat that practically its whole surface is covered with stock. Only as much of the cylinder remains uncovered as is necessary to keep the slots clean.

Made of best phosphor bronze the screen plates may be easily changed. The cylinder is open in one end in direct communication with the outlet of the screen, this end resting on fine lignum vitae bearings. The tightening here consists of two felt lined metal bands, and water pressure is used to prevent forming of lumps between these bands and the cylinder. The other end of the cylinder is closed and is drawn out into a sleeve through which the power is transmitted. The tightening here consists of suitable packing box arrangements.

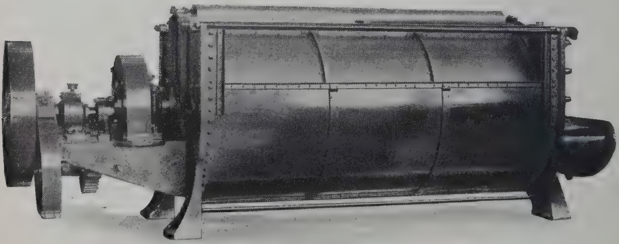
Revolving Drum Causes Suction.

A polygonal drum inside the screen cylinder revolves causing the inward suction of the stock through the cylinder. Due to the construction of the cylinder it is impossible for the stock to rotate with the polygonal drum, which practically fills the interior of the cylinder, thus preventing the formation of lumps in the stock. Due to the fact that the drum revolves entirely covered with stock and is not exposed to the air, foaming is prevented.

An Efficiently Designed Vat.

The vat consists of a cast iron end frame and iron plate wall is lined with copper for sulphite pulp and paper, unlined for sulphate. The inside of the vat is absolutely smooth and a drain is placed in the bottom which is easily accessible from the outside. The slots are cleaned by means of a spray pipe placed inside the cylinder, the water collecting in a gutter outside.

The drive is direct on the axle of the polygonal drum, the screen cylinder being driven from the same axle by means of gear wheels. All gearing is milled and well protected by steel guards, and SKF ballbearings are used outside, those nearest to the screen being equipped with extra tightening arrangements for protection against water and stock.



The P. A. P. A. Pulp Screen

Groundwood Pulp Manufacturers can Prevent a $17,000.00 Annual Waste.

ANY manufacturer in the world would be interested in preventing an annual waste of $17,000. That a new machine has been designed to eliminate such a waste in groundwood pulp mills will therefore prove of great interest to all manufacturers of this product.

This new machine refines the reject from the grinders and is known as the Valley Refiner. Requiring but 50 HP to operate its costing an average of about $100.00 per week, its annual power consumption would be in the neighborhood of $5,000.00. It saves a minimum of five tons of pulp per day amounting annually to approximately 1500 tons. At the rate of $15.00 per ton this saving would total $17,000.

Small Power Requirements

The Valley Refiner is made in single unit and twin unit types. It can be driven either by motor or belt at a speed of 370 R. P. M., the single unit, as stated above, requiring approximately 50 HP and the twin unit, twice that amount. The single unit machine has a capacity of 6 to 7 tons in 24 hours, the twin machine doubling that capacity.

Unique Refiner Stones

Probably the most important features of the new machine are its two specially designed refiner stones whose cutting surfaces, running opposite one another, are grooved in an unusual manner, resulting in greater efficiency.

One stone is in a fixed position, the other rotating and they are held in cast iron retaining rings. One ring is keyed to a rotating shaft and the other fastened to the body wall of the casing, and they are so designed as to permit at all time the pouring of molten sulphur or lead for holding the stone in correct and permanent position.

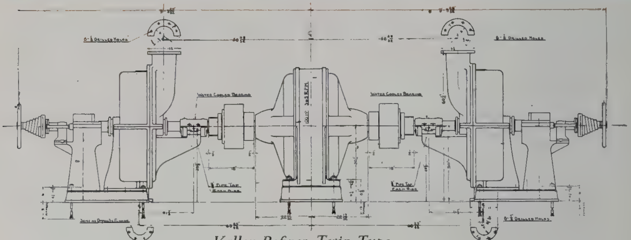
The rings are so placed that they can be removed whenever the occasion arises. It is necessary to sharpen the refiner stones at about 30 days intervals. The machine is made to permit the removal of the stones with the greatest ease and the recutting may be done with an air chisel, due to the manner in which the stones are grooved.

Because of the design of the machine the maximum life is obtained from the stones. Each machine is equipped with a hand wheel for controlling the adjusting springs, which in turn maintain the correct position of the stones when the machine is operating.

Heavy Casings of Handy Design.

The casing of the Valley Refiner is made of cast iron with a heavy body wall and large discharge ways, allowing the stock to pass freely from the inlet to the stones and then to the discharge.

The case is horizontally split and fastened together by bolts placed in holes drilled through flanges. This horizontal split feature permits the quick removal of stones for recutting. The casing is equipped with machine stuffing boxes and has wash-out holes on the cover plates wherever necessary. The inlet and outlet are equipped with standard pipe flanges.



Valley Refiner Twin Type

The Bearings.

Large ring, oil water-cooled bearings are used on the machine at all points required and each machine is equipped with large thrust bearings of ball type, placed in a housing of special design. All bearings are supported by pedestal, and guides and ways necessary for the adjusting of stones, for wear and for operation.

The Machine Bed

The machine can be supported, as pictured in the design of the twin installation, by cast iron pads anchored and buried in a cement foundation or it can be equipped with a continuous cast iron bed. Both types are in demand. The cast iron bed is perhaps the most popular and practical for the single unit, as it gives a more rigid installation.

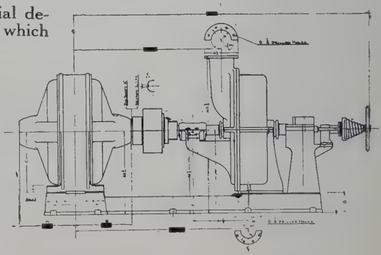
The Drive.

A sliding coupling of special design is placed on all machines which are to be motor driven. This coupling takes up all wear on the stones and allows the driving shaft to be removed from the machine whenever necessary without disturbing the motor or causing it to be moved from its fixed position.

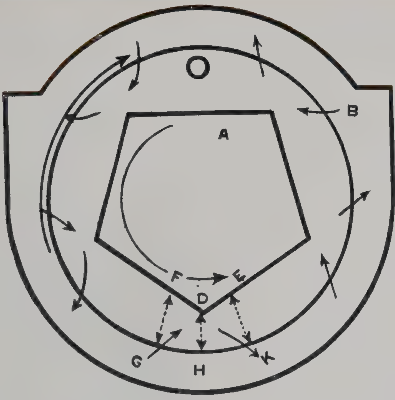
When the belt drive is used Valley Refiners are equipped with two plain, water cooled bearings and pulley placed in such a manner as a to allow for all stone adjustments.

The driving shaft is made of steel, is large in diameter and is protected by bronze sleeves at points which pass through the stuffing boxes. These sleeves are of the proper length to protect the shaft at these points, throughout its maximum lateral movement during adjustment and also protect it from the wear of the stones.

Although recently designed the Valley Refiner is already creating a great deal of interest among groundwood pulp manufacturers. Its services are of such value that wherever a manufacturer investigates it thoroughly, it is at once considered a necessity. It will prove to be worth many times the purchase price. A letter will bring further particulars regarding it. Do not fail to learn more of this exceptional machine.



Single Unit Type



Illustrating the Principle of the P.A.P.A. Screen

THE motion of the stock is caused by the revolving of the polygonal drum A, with higher speed and in opposite direction of the screen cylinder B.

The distance D-H is smaller than the distances F-G and E-K. When drum A revolves and point D comes on the extension of the radius on which point E is located, the space in this point between the polygonal drum and the screen cylinder will be smaller and consequently a pulsation outwards will take place. Then point D passes the extension of the radius on which point F is located, and goes over where it is on the diagram, the space between the drum and the cylinder becomes larger and an inward suction takes place.

Modesty?

In these days of flappers Monty Glass tells a story which rivals the tale of the good old maid who always referred to the table legs as "limbs."

A certain spinster of uncertain age of Mid-Victorian precept, had a large library in which the books by male authors and those by female authors were kept in separate cases. The story runs that a friend of hers, Lord Lindhurst by name, once remarked, "I suppose she did not want to add to her library."

All of which reminds us of another of Monty Glass' stories in which two old maids complained to authorities that two gentlemen were bathing in the sea each morning, not more than half a mile away from thier front window, easily within reach of their vision. The gentlemen, upon being told rowed a mile and a half out to sea for their morning swim the next day. Again the complaint was made to them, the officer saying, "I regret to state that the ladies can still see you fairly well by using a strong pair of field glasses."

A Complete Line of Paper Mill Machinery

Niagara Beaters

Valley Size Tester

Beating, Washing and Bleaching Engines

Barkers and Barker Attachments

Chippers—Re-Chippers—

Knot Screens (Revolving) and Shaker Type

Diaphragm Screens— Felt Washers

Blow-Pits

Cylinder Machines

Grinder Regulators

Patented Steam Joints

Deckers (Single and Double)

Stuff Chests (Vertical and Horizontal)

Shredders and Special Washers for Old Paper Stock

Wet Machines and Patent Roll Skinners

Bronze, Semi-Steel, Lead and Iron Castings

Pumps: Centrifugal and Stuff

Acid Tanks

P. A. P. A. Rotary Screens

Pulp Refiners

Bandless Beater Rolls

Valley Iron Works Company

Plant: Appleton, Wisconsin

New York Office: Room 613, 350 Madison Ave.

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